UNITED STATES
AIR FORCE

OCCUPATIONAL SURVEY REPORT

BIOENVIRONMENTAL ENGINEERING

AFSC 4B0X1

OSSN: 2386

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JULY 2000

OCCUPATIONAL ANALYSIS PROGRAM
AIR FORCE OCCUPATIONAL MEASUREMENT SQUADRON
AIR EDUCATION and TRAINING COMMAND
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PREFACE

This report presents the results of an Air Force Occupational Survey of the Bioenvironmental Engineering career ladder, Air Force Specialty Code (AFSC) 4B0X1. Authority for conducting occupational surveys is contained in AFI 36-2623. Computer products used in this report are available for use by operations and training officials.

First Lieutenant Nicole Rahmer developed the survey instrument. Mrs. Karen Tilghman provided computer programming support and Ms. Dolores Navarro provided administrative support. Ms. Kimberly Williams analyzed the data and wrote the final report. This report has been reviewed and approved by Lt Col Roger W. Barnes, Chief, Airman Analysis Section, Occupational Analysis Flight, Air Force Occupational Measurement Squadron (AFOMS).

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to AFOMS/OMYXI, 1550 5th Street East, Randolph Air Force Base, Texas 78150-4449, or by calling DSN 487-5543. For information on the Air Force occupational survey process or other on-going projects, visit our web site at http://www.omsq.af.mil.

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SUMMARY OF RESULTS

1. **Survey Coverage**: The Bioenvironmental Engineering career ladder was surveyed to provide current job and task data for use in updating career ladder documents and training programs. Survey results are based on responses from 537 members accounting for 63 percent of the total population surveyed. Of the 537 respondents, 438 were Active Duty (AD), 78 were Air National Guard (ANG), and 21 were Air Force Reserve Command (AFRC). Responses were received from 53 percent of all assigned AD personnel, 43 percent of all assigned ANG personnel, and 38 percent of all assigned AFRC personnel. The total sample (N=537) accounts for 51 percent of all assigned AD, ANG, and AFRC members. All major commands (MAJCOMs) are well represented in the survey sample.

2. **Specialty Jobs**: Three clusters and three jobs were identified in the career ladder structure analysis. The Industrial Hygiene Cluster, Respiratory Protection Job, Environmental Monitoring Cluster, Equipment Job, and Readiness Job are oriented toward technical task performance and account for 78 percent of the survey population. Members of the Management Cluster spend 65 percent of their time on the performance of management, training, administrative, and supply and equipment activities.

3. **Career Ladder Progression**: A typical pattern of progression is noted within the AFSC 4B0X1 career ladder. Personnel at the 3-skill level and 5-skill level work in the technical jobs of the career ladder and spend most of their time on technical tasks. As incumbents move up to the 7-skill level, they spend 38 percent of their time performing the nontechnical tasks of the career ladder. The 9-skill level members spend more than two-thirds of their time performing medical readiness, management and supervisory, training, administrative, and supply and equipment activities. Comparative analyses across the Duty Air Force Specialty Code (DAFSC) groups for the AD, ANG, and AFRC components reveal that the same pattern holds for the ANG and AFRC 5- and 7-skill level members although the AD 7-skill level members spend 30 percent more time on management, supervisory, training, administrative, and supply and equipment activities compared to the ANG DAFSC 4B071 personnel and 12 percent more time than the AFRC members.

4. **Training Analysis**: The current AFSC 4B0X1 Specialty Training Standard (STS) is supported by occupational survey report (OSR) data although several STS elements should be reviewed to determine modifications that may be necessary to improve the effectiveness or efficiency of training.

5. **Job Satisfaction**: Job satisfaction among AFSC 4B0X1 personnel is higher for the 1-48 months' and 97+ months' Total Active Federal Military Service (TAFMS) groups but lower for the 49-96 months' TAFMS groups when compared to the 1999 sample of like Medical AFSCs. Reenlistment intentions are slightly lower than the comparative sample for all TAFMS groups. Job satisfaction is lower for first- and second-enlistment members in the current survey compared to the 1996 survey sample.

6. **Implications**: Survey results indicate the present classification structure accurately portrays the jobs performed in this career ladder. Progression through the career ladder is typical of most AFSCs. Training documents warrant review for the possible proficiency-code revision concerning specific tasks with less than 20 percent members performing for members in their first job (1-24 months' TAFMS), first-enlistment (1-48 months' TAFMS), or holding the 3-skill level. In addition, some tasks not referenced to the STS should be reviewed for possible inclusion in the STS. Finally, job satisfaction ratings are higher overall when compared to similar AFSCs with the exception of second-enlistment members.

OCCUPATIONAL SURVEY REPORT (OSR)
BIOENVIRONMENTAL ENGINEERING
(AFSC 4B0X1)

INTRODUCTION

This is a report of an occupational survey of the Bioenvironmental Engineering career ladder conducted by the Air Force Occupational Measurement Squadron (AFOMS). The current Bioenvironmental Engineering career ladder was created in October 1993. Survey data will be used to identify current utilization patterns among career ladder personnel and evaluate career ladder documents and training programs.

Background

As described in the AFMAN 36-2108, *Airman Classification,* 30 April 2000, Specialty Description, Bioenvironmental Engineering personnel perform and manage bioenvironmental engineering activities in the fields of industrial hygiene, occupational health, radiological health, and environmental protection to ensure healthful working conditions are maintained and that the environment is not adversely affected by Air Force operations. They are responsible for the following activities: reviewing environmental assessments and statements; evaluating water quality; evaluating domestic waste treatment and solid waste disposal systems and procedures; identifying and evaluating potential pollution sources; investigating chemical spills and other environmental releases; collecting industrial hygiene data on noise, radiation, illumination, ventilation, air quality, ergonomics, and thermal stress to assess degree of hazard and worker exposure; and performing and directing surveys to detect and identify chemical, biological, and radiological contaminants.

Personnel entering the AFSC 4B0X1 career ladder must attend the B3ABY4B031-002, Bioenvironmental Engineering Apprentice course at Brooks AFB TX. This course is designed to train students on the following areas: math, chemistry, physics, ecology, and toxicology; drinking water surveillance and analysis; solid waste management; Air Force, state, and federal environmental protection programs; environmental pollution and compliance sampling; radiation hazards and controls; radioactive waste disposal; film dosimetry program; industrial hygiene surveillance, including air quality, ventilation, noise, respiratory protection, confined spaces, and ergonomics; and medical readiness.

Entry into this career ladder currently requires an Armed Services Vocational Aptitude Battery (ASVAB) score of General – 48. A strength factor of "J" (weight lift of 60 lbs) is also required. For entry into this specialty, the following conditions are mandatory: normal color vision as defined in AFI 48-123, *Medical Examination and Standards;* qualification to operate government vehicles according to AFMAN 24-309, *Vehicle Operations*; and a minimum age of 18 years.

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SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) Occupational Survey Study Number (OSSN) 2386, dated January 2000. A tentative task list was prepared after reviewing pertinent career ladder publications and directives, pertinent tasks from the previous survey instrument, and data from the last OSR. The preliminary task list was refined and validated through personal interviews with 20 subject-matter experts (SMEs) at the following training location and operational bases:

BASE	UNIT(S) VISITED
Brooks AFB TX	USAFSAM & 311 MDS
Vandenberg AFB CA	30 AMDS
Kelly AFB TX	76 AMDS

The resulting JI contains a comprehensive listing of 629 tasks grouped under 13 duty headings and a background section requesting information, such as grade, base, major command (MAJCOM) assigned, organizational level, job title, and work or functional area. Also included in the background section are seven questions dealing with Bioenvironmental Engineering, such as types of unit of assignment, support equipment used or operated, and computer software or systems used in the respondent's present job.

Survey Administration

From January to April 2000, base-training offices at operational units worldwide administered the inventory to eligible AFSC 4B0X1 personnel. Job incumbents were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Personnel Center, Randolph AFB TX. Each individual who completed the inventory first completed an identification and biographical information section and then selected each task performed in his or her current job. After selecting all tasks performed, each member then rated each of these tasks on a 9-point scale, showing relative time spent on that task, as compared to all other tasks checked. The ratings ranged from 1 (very small amount time spent) through 5 (about average time spent) to 9 (very large amount time spent). To determine relative time spent for each task checked by a respondent, all of the incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100 to provide a relative percentage of time for each task. This procedure provides a basis for comparing tasks in terms of both percent members performing and average percent time spent.

Survey Sample

Personnel were selected to participate in this survey so as to ensure an accurate representation across MAJCOMs and military paygrade groups. All eligible AFSC 4B0X1 personnel were mailed survey disks. Table 1 reflects the percentage distribution, by MAJCOM, of assigned AFSC 4B0X1 personnel as of January 2000. The 537 respondents in the final sample represent 51 percent of the total assigned personnel and 63 percent of the total personnel surveyed. Table 2 reflects the paygrade distribution for these AFSC 4B0X1 personnel.

TABLE 1

COMMAND DISTRIBUTION OF AFSC 4B0X1 PERSONNEL

COMMAND	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
AFMC	27	25
ACC	14	18
AMC	10	10
AETC	7	9
PACAF	7	6
USAFE	5	5
AFSPC	4	5
OTHERS	4	3
ANG	17	15
AFRC	5	4

TOTAL ASSIGNED* = 1,061
TOTAL SURVEYED** = 857
TOTAL IN SURVEY SAMPLE = 537
PERCENT OF ASSIGNED IN SAMPLE = 51%
PERCENT OF SURVEYED IN SAMPLE = 63%

* Assigned strength as of January 2000

** Excludes personnel in PCS, student, hospital status, or less than 6 weeks on the job

TABLE 2

PAYGRADE DISTRIBUTION OF SURVEY SAMPLE

GRADE	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
E-1– E-2	6	2
E-3	17	20
E-4	25	25
E-5	23	25
E-6	14	14
E-7 – E-8	15	14

* Assigned strength as of January 2000

Both Command and Paygrade distribution of the survey sample are close to the percent assigned. The sample is a true representation of the career ladder population assigned to the MAJCOMs.

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. To obtain the needed task factor data, selected senior AFSC 4B0X1 personnel (generally E-6 or E-7 craftsmen) also completed a second disk for either training emphasis (TE) or task difficulty (TD). These disks were processed separately from the JIs. This information is used in a number of different analyses discussed in more detail within the report.

Training Emphasis (TE): TE is a rating of the amount of emphasis that should be placed on tasks in entry-level training. The 42 senior noncommissioned officers (NCOs) who completed a TE disk were asked to select tasks they felt require some sort of structured training for entry-level personnel and then indicate how much training emphasis these tasks should receive, from 1 (extremely low emphasis) to 9 (extremely high emphasis). Structured training is defined as training provided at resident training schools, field-training detachments (FTDs), mobile training teams (MTTs), formal on-the-job-training (OJT), or any other organized training method. Interrater agreement for these 42 raters was acceptable. The average TE rating was 3.21, with a standard deviation of 1.68. Any task with a TE rating of 4.89 or above is considered to have high TE.

Task Difficulty (TD): TD is an estimate of the amount of time needed to learn how to do each task satisfactorily. The 42 senior NCOs who completed TD disks were asked to rate the difficulty of each task using a 9-point scale (extremely low to extremely high). Interrater reliability was acceptable. Ratings were standardized so tasks have an average difficulty of 5.00 and a standard deviation of 1.00. Any task with a TD rating of 6.00 or above is considered to be difficult to learn.

When used in conjunction with the primary criterion of percent members performing, TE and TD ratings can provide insight into first-enlistment personnel training requirements. Such insights may suggest a need for lengthening or shortening portions of instruction supporting entry-level jobs.

SPECIALTY JOBS

The first step in the analysis process is to identify the structure of the career ladder in terms of the jobs performed by the respondents. The Comprehensive Occupational Data Analysis Program (CODAP) assists by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on these tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, CODAP either adds new members to this initial group or forms new groups based on the similarity of tasks and time spent ratings.

The basic group used in the hierarchical clustering process is the ***Job***. When two or more jobs have a substantial degree of similarity in tasks performed and time spent on tasks, they are grouped together and identified as a ***Cluster***. The structure of the career ladder is then defined in terms of jobs and clusters of jobs.

Overview of Specialty Jobs

Based on the analysis of tasks performed and the amount of time spent performing each task, three clusters and three independent jobs were identified within the career ladder. Figure 1 illustrates the clusters and jobs performed by AFSC 4B0X1 personnel.

A listing of these clusters and jobs is provided below. The stage (STG) number shown beside each title references computer printed information. The letter "N" indicates the number of personnel in each stage.

I. INDUSTRIAL HYGIENE CLUSTER (STG064, N=361)
   - A. Industrial Hygiene Job
   - B. Entry-Level Industrial Hygiene Job
   - C. Hazardous Materials (HAZMAT) Job
   - D. Quality Control Job
   - E. Respiratory Protection Program Manager Job

II. RESPIRATORY PROTECTION JOB (STG074, N=11)

III. ENVIRONMENTAL MONITORING CLUSTER (STG022, N=27)
   - A. Entry-Level Water Program Job
   - B. Environmental Protection Job

IV. EQUIPMENT JOB (STG072, N=8)

V. READINESS JOB (STG071, N=8)

VI. MANAGEMENT CLUSTER (STG042, N=55)
   A. Supervisor Job
   B. Resource Management Job

The respondents forming these clusters and jobs account for 88 percent of the survey sample. The remaining 12 percent, for one reason or another, did not group into one of these clusters or jobs. Examples of job titles for these personnel include Corrosion Control Technician, Radiation Safety Technician, Health Physics Technician, Pollution Prevention/ Hazardous Waste Program Manager, and Career Development Course (CDC) Writer.

AFSC 4B0X1 CAREER LADDER SPECIALTY JOBS (N = 537)

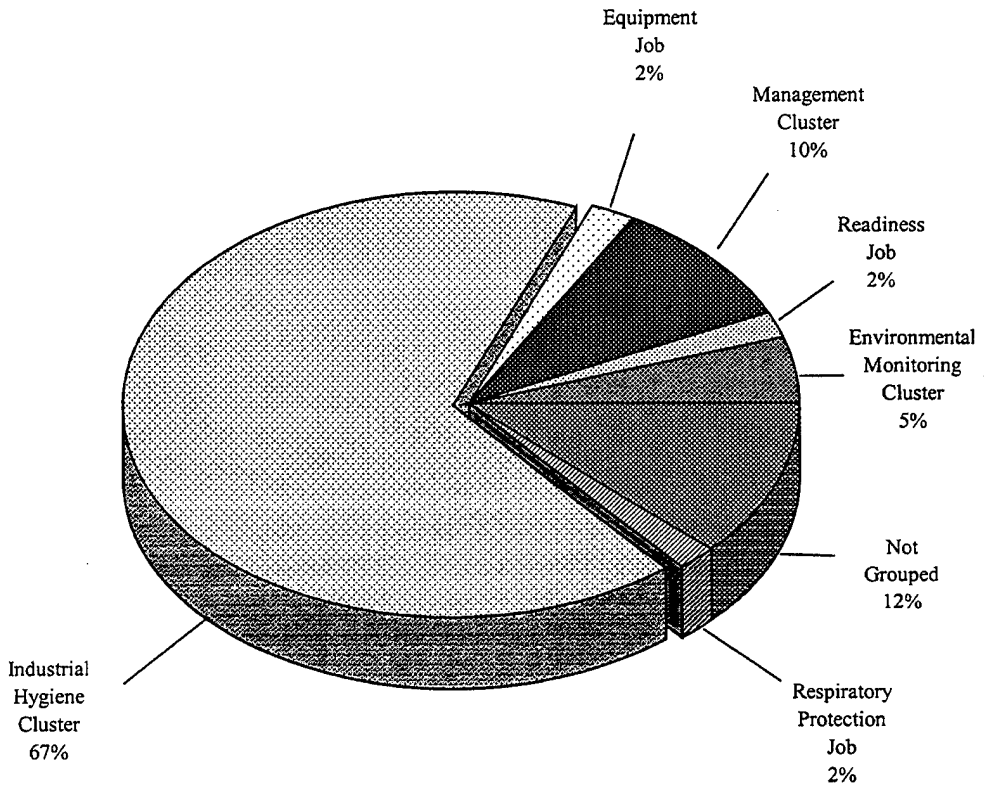

FIGURE 1

Group Descriptions

The following paragraphs contain brief descriptions of the clusters and jobs identified through the career ladder structure analysis. Table 3 presents the relative time spent on duties by members of the specialty clusters and jobs. Selected background data for the clusters and jobs are provided in Table 4. Representative tasks for all of the stages are contained in Appendix A.

I. INDUSTRIAL HYGIENE CLUSTER (STG064). The 361 members of this cluster comprise 67 percent of the survey sample and are the core of the career ladder. These members perform an average of 209 tasks (the second highest average among the members performing primarily technical tasks) with 47 percent of their time spent Performing Industrial Hygiene Program Activities (Duty C). They also spend 10 percent of their time Performing Management and Supervisory Activities (Duty J). Five jobs were identified within this cluster. Two of the jobs were distinguished by the number of tasks being performed within the industrial hygiene program and the skill levels of those job members. Three of the jobs were distinguished by the tasks performed within the areas related to hazardous materials (HAZMAT), quality control, and respiratory protection. These jobs will be discussed below.

Typical tasks performed by the core of the career ladder include:

- Research material safety data sheets (MSDSs)
- Interview shop personnel
- Evaluate personal protective equipment (PPE) for chemical hazards
- Research Occupational Safety and Health Administration (OSHA) standards
- Identify hazardous noise sources
- Evaluate results of noise measurements
- Research Air Force Occupational Safety and Health (AFOSH) standards
- Calibrate air sampling pumps
- Record results of industrial hygiene surveys
- Research National Institute for Occupational Safety and Health (NIOSH) publications
- Perform sound-level measurements
- Construct or maintain industrial case files, other than tab F
- Prepare industrial hygiene reports
- Review industrial case files

The predominant paygrades of this cluster are E-4 and E-5 with 30 percent and 26 percent, respectively. Forty-seven percent of the members are 5-skill levels while 24 percent hold the 3-skill level and 28 percent hold the 7-skill level. Forty-four percent of the members within the Industrial Hygiene Cluster are supervisors. The AD members of this cluster average 7 years' Total Active Federal Military Service (TAFMS) and 6 years' time in career field (TICF). (The TAFMS and TICF are not reported for ANG and AFRC members as their time is calculated differently.)

The **Industrial Hygiene Job** is the core of the cluster and is comprised of 152 members with more than half holding the 5-skill level. While these members perform the tasks listed

above for the Industrial Hygiene Cluster, this job stands out from the others within the cluster due to the large amount of time the members spend performing specific industrial hygiene program tasks, such as recording results of industrial hygiene surveys, evaluating results of air sample analyses, and evaluating ventilation rates.

The **Entry-Level Industrial Hygiene Job** consists of 23 members who are primarily 3-skill levels and who spend over two-thirds of their relative time Performing Industrial Hygiene Program Activities (Duty C) and Monitoring Drinking Water, Swimming Pools, or Spas (Duty A). In addition to the tasks listed above for the Industrial Hygiene Cluster and the Industrial Hygiene Job, these job members are spending more relative time collecting potable water samples, performing pH determinations, and evaluating hearing protection devices. They are also performing a much smaller number of tasks compared to the core members of the Industrial Hygiene Cluster and the Industrial Hygiene Job.

The **Hazardous Materials Job** is comprised of five members who are distinguished from the other members of the Industrial Hygiene Cluster by the amount of time they spend performing tasks related to hazardous materials, including reviewing hazardous materials through the HAZMAT pharmacy, assigning chemical issue exception (IEX) codes, and evaluating contact or absorption hazards. One of the members is assigned to a HAZMAT pharmacy while the remaining members are assigned to a hospital or clinic environment.

The **Quality Control Job** consists of 109 members who perform an average of 347 tasks, the largest number of tasks for any job identified within the sample. These members are responsible for not only performing the technical field activities but also performing a quality control function for the work being performed by the members of the core of the career field. They spend most of their time researching national, federal, and Air Force standards and regulations and evaluating the results of measurements, samplings, and analyses.

The **Respiratory Protection Program Manager Job** contains six AD members who spend more time than the other members of the Industrial Hygiene Cluster Performing Respiratory Protection (RP) Program Activities (Duty D). Primarily 5-skill level members and E-5s, they are tasked with conducting OJT for respiratory protection program members, directing respiratory protection programs, and selecting respiratory protection equipment.

II. RESPIRATORY PROTECTION JOB (STG074). The 11 airmen in this job comprise 2 percent of the survey sample. Ten of the members are AD. The Respiratory Protection Job members spend 49 percent of their time Performing Respiratory Protection (RP) Program Activities (Duty D) and 30 percent of there time Performing Industrial Hygiene Program Activities (Duty C). The average number of tasks performed by this group is 52, indicating a very focused job. Distinctive tasks performed include:

- Perform quantitative fit-testings
- Conduct RP training
- Prepare RP certifications
- Administer respiratory protection (RP) questionnaires

- Evaluate RP questionnaires
- Brief shop supervisors on RP issues
- Identify OSHA or other respiratory protection requirements
- Evaluate RP programs
- Perform qualitative fit-testing
- Document master RP inventories
- Perform RP administrative duties, such as entering information into command core system
- Coordinate RP issues with appropriate agencies
- Inspect work areas for RP compliance
- Regulate issues of RP equipment

Eight of the members work primarily in the Respiratory Protection work area with the remaining members working in Industrial Hygiene. Eight of these airmen hold the 3-skill level. The predominant paygrade of this cluster is E-3. Ninety percent of the Respiratory Protection Job members are in their first-enlistment. The average TICF is slightly more than 2 years for these job members.

III. ENVIRONMENTAL MONITORING CLUSTER (STG022). The 27 AD airmen in this cluster comprise 5 percent of the survey sample. Although these members spend 61 percent of their time Monitoring Drinking Water, Swimming Pools, or Spas (Duty A) and a much lower percentage (14 percent) Performing Environmental Monitoring Activities (Duty B), they are described as the Environmental Monitoring Cluster to cover all of the monitoring activities they perform. They average 62 tasks performed indicating a more focused job compared to the members of the Industrial Hygiene Cluster. Representative tasks performed by these members include:

- Collect potable water samples
- Perform pH determinations
- Record results of pH or disinfectant residuals
- Collect water samples from swimming pools
- Preserve drinking water samples for chemical analyses
- Perform chlorine-level determinations
- Prepare water samples for shipment
- Perform bacteriological analyses of water for total coliform using colilert technique
- Record results of bacteriological analyses of water samples
- Evaluate water quality complaints from customers
- Report water sampling results to appropriate agencies
- Perform bacteriological analyses of water for fecal coliform using colilert technique
- Collect wastewater samples
- Decontaminate sampling equipment

The predominant paygrade is E-3, and 52 percent of the members hold the 3-skill level. Almost half of the members work primarily in the Water Program or in Environmental Protection/Surveillance. Two jobs were identified within this cluster. They are distinguished by the following factors: TAFMS, TICF, and average number of tasks performed.

The **Entry-Level Water Program Job** consists of six AD members who stand out from the other members of the cluster due to the low average number of tasks performed by the members. The average of 35 tasks is the lowest number of any job identified within the career field. Compared to the members of the Entry-Level Industrial Hygiene Job, these Entry-Level Water Program Job members spend almost three times as much time Monitoring Drinking Water, Swimming Pools, or Spas (Duty A) and less than one-fifth the amount of time performing Industrial Hygiene Program Activities (Duty C). The members of the Entry-Level Water Program Job have been in the military and in the career field half of the amount of time the members of the second job within the Environmental Monitoring Cluster, the Environmental Protection Job.

The **Environmental Protection Job** members spend the majority of their time Monitoring Drinking Water, Swimming Pools, or Spas (Duty A), but they also spend time performing specific environmental monitoring activities (Duty B) dealing with the collection of samples. This includes air samples for environmental analyses, bulk hazardous waste samples, bulk asbestos samples, surface water samples, monitoring well water samples, and soil samples in support of HAZMAT spills.

IV. EQUIPMENT JOB (STG072). This job consists of eight AD members who spend 17 percent of their time Performing General Supply and Equipment Activities in Duty M. These members perform an average of 96 tasks, and their emphasis on equipment-related tasks distinguishes this job from the other jobs identified within the sample. These members are not spending all of their time performing supply- and equipment-related activities as they are also spending 41 percent of their relative time Performing Industrial Hygiene Program Activities (Duty C) and 11 percent of their time Monitoring Drinking Water, Swimming Pools, or Spas (Duty A). They are, however, primarily tasked with ensuring equipment is in the proper condition for use by the Bioenvironmental Engineering community. Distinguishing tasks performed by these airmen include:

- Identify and report equipment or supply problems
- Identify effective life of equipment
- Calibrate air sampling pumps
- Calibrate noise dosimeters
- Calibrate octave-band noise analyzers
- Calibrate sound-level meters
- Inventory equipment, tools, parts, or supplies
- Evaluate serviceability of equipment, tools, parts, or supplies
- Maintain precision measurement equipment (PME) calibration schedules
- Pick up, deliver, or store equipment, tools, parts, or supplies
- Develop equipment checklists

- Initiate documentation to turn in excess or surplus property
- Identify equipment loan options
- Maintain organizational equipment or supply records, such as custodian authorization/custody receipt listings (CA/CRLs)

The predominant paygrades are E-3 and E-4 at 38 percent each, and 63 percent of the members in this job are 3-skill levels. The average TICF for the AD members is slightly less than 4 years while the average TAFMS is 4 years.

V. READINESS JOB (STG071). The eight members of this job (2 percent of the sample) represent the AD, ANG, and AFRC components. They spend 31 percent of their time Performing or Practicing Wartime Disaster Operations (Duty H) with an average of 114 tasks performed. In addition to their concentration on wartime disaster operations, these members spend 10 percent of their time Performing Training Activities (Duty K), such as developing training programs, plans, or procedures, and developing or procuring training materials or aids for wartime disasters. Typical tasks performed by these job members include:

- Operate NBC agent detection equipment
- Train medical personnel on NBC agents
- Assist in identification of nuclear, biological, and chemical (NBC) warfare agents
- Operationally maintain water testing kits
- Maintain ground crew ensembles
- Don or doff PPE
- Identify contaminated areas or issue appropriate warnings
- Monitor facility NBC contamination controls
- Identify placement of facility sites, such as medical sites
- Brief field officials concerning types of required PPE
- Brief field officials concerning potential health hazards
- Research wartime manuals
- Identify water sampling requirements to determine contamination of water systems
- Record chemical, biological, or radiological exposures

Fifty percent of the Readiness Job members are in the E-6 paygrade, and 62 percent of the members are 7-skill levels. The AD members average 15 years' TAFMS and 12 years' TICF making them the most senior group in the sample among the Bioenvironmental Engineering members performing technical activities.

VI. MANAGEMENT CLUSTER (STG042). The 55 members of the Management Cluster comprise 10 percent of the sample. These airmen perform an average of 114 tasks. The cluster members spend 45 percent of their time Performing Management and Supervisory Activities (Duty J), 16 percent of there time Performing Industrial Hygiene Program Activities (Duty C), and 13 percent of their time Performing Training Activities (Duty K). Two distinct jobs were identified within this cluster based on the amount of time spent performing supervisory

activities and resource management activities. The following tasks are representative of the tasks performed by the members of the Management Cluster:

- Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting
- Counsel subordinates concerning personal matters
- Interpret policies, directives, or procedures for subordinates
- Write recommendations for awards or decorations
- Inspect personnel for compliance with military standards
- Evaluate personnel for compliance with performance standards
- Write or indorse military performance reports or appraisals
- Conduct supervisory performance feedback sessions
- Establish performance standards for subordinates
- Develop or establish work schedules
- Conduct OJT
- Conduct supervisory orientations for newly assigned personnel
- Conduct general meetings, such as staff meetings, briefings, conferences, or workshops
- Evaluate work schedules

The predominant paygrades of these members are E-6 and E-7, and 53 percent of the Management Cluster members hold the 7-skill level. The AD members of this job are the most senior members of the identified clusters and jobs as they average 16 years' TAFMS and 14½ years' TICF. Eighty-nine percent of these incumbents report supervising other members.

The **Supervisor Job** is comprised of 41 members who are responsible for the day-to-day management and supervision within the career field. They are the superintendents and noncommissioned officers-in-charge (NCOICs) of the Bioenvironmental Engineering AFSC. They perform more tasks, on average, than the other members of the Management Cluster due to the managerial as well as the technical aspects of their job. In addition to the members performing the top tasks listed above for the Management Cluster, these members participate in councils, boards, or committee meetings, such as base facility boards or environmental protection committees, as well as research OSHA and other environmental standards and publications.

The **Resource Management Job** has six members who are distinguished from the other members of the cluster by spending more time performing specific Management and Supervisory Activities (Duty J) and Supply and Equipment Activities (Duty M) including the following tasks: drafting budget requirements, evaluating budget requirements, researching resource options, and reviewing expenditures. Their primary focus is logistical in nature versus the personnel and training issues with which the other members of the Management Cluster are primarily concerned.

Comparison of Current Group Descriptions to Previous Study

The results of the specialty job analysis were compared to the previous OSR, dated December 1996. As shown in Table 5, the Industrial Hygiene Cluster was identified in the previous survey by the same name. The Hazardous Materials (HAZMAT) Pharmacy Specialist Job identified in the previous study is called the Hazardous Materials (HAZMAT) Job within the Industrial Hygiene Cluster in the current survey. This study's Respiratory Protection Job was not identified in the 1996 study. The Equipment Job in this survey was called the Supply Job in the previous survey, and the Readiness Job identified in the current sample was referred to as the Contingency Support Job for the 1996 sample. The Environmental Monitoring Cluster in this study was identified in the previous study as the Environmental Protection Job. Two jobs in the previous survey (Radiological Health Job and Training Job) were not identified in the current study. Finally, the Management Cluster identified in the current study was listed in the 1996 study as the Supervisory Cluster.

Summary

Career ladder structure analysis identified three clusters and three jobs: Industrial Hygiene Cluster, Respiratory Protection Job, Environmental Monitoring Cluster, Equipment Job, Readiness Job, and Management Cluster. The core of the career ladder (Industrial Hygiene Cluster) involves the performance of technical tasks associated with industrial hygiene programs involving a variety of areas, such as noise, air, ventilation, and chemicals. The Respiratory Protection Job members spend almost half of their time Performing Respiratory Protection (RP) Program Activities (Duty D). The Environmental Monitoring Cluster members spend 75 percent of their time Monitoring Drinking Water, Swimming Pools, or Spas (Duty A) as well as monitoring other environmental programs, including air, hazardous waste, and asbestos. The members of the Equipment Job focus their efforts on ensuring the bioenvironmental engineering equipment and supplies are available and in the proper condition for use. The Readiness Job members are responsible for Performing and Practicing Wartime Disaster Operations (Duty H) and providing contingency support training for other members of this AFSC. The Management Cluster contains the more senior members of the career ladder who spend most of their time managing the daily bioenvironmental engineering activities involving personnel, training, and resources.

TABLE 3

RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY CLUSTERS AND JOBS

DUTIES		Industrial Hygiene Cluster (STG064) (N=361)	Respiratory Protection Job (STG074) (N=11)	Environmental Monitoring Cluster (STG022) (N=27)
A	MONITORING DRINKING WATER, SWIMMING POOLS, OR SPAS	7	5	61
B	PERFORMING ENVIRONMENTAL MONITORING	6	3	14
C	PERFORMING INDUSTRIAL HYGIENE PROGRAM ACTIVITIES	47	30	10
D	PERFORMING RESPIRATORY PROTECTION (RP) PROGRAM ACTIVITIES	6	49	1
E	PERFORMING RADIOLOGICAL HEALTH PROGRAM ACTIVITIES	7	2	3
F	PERFORMING BIOENVIRONMENTAL SUPPORT OF MISSILE AND SHUTTLE OPERATIONS	-	0	-
G	PERFORMING OR PRACTICING PEACETIME DISASTER OPERATIONS	2	-	-
H	PERFORMING OR PRACTICING WARTIME DISASTER OPERATIONS	5	3	1
I	PERFORMING MEDICAL READINESS ACTIVITIES	3	-	-
J	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	10	1	4
K	PERFORMING TRAINING ACTIVITIES	3	1	1
L	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1	1	-
M	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	2	2	3

" - " indicates less than 1 percent

TABLE 3 (CONTINUED)

RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY CLUSTERS AND JOBS

DUTIES		Equipment Job (STG072) (N=8)	Readiness Job (STG071) (N=8)	Management Cluster (STG042) (N=55)
A	MONITORING DRINKING WATER, SWIMMING POOLS, OR SPAS	11	5	2
B	PERFORMING ENVIRONMENTAL MONITORING	4	2	3
C	PERFORMING INDUSTRIAL HYGIENE PROGRAM ACTIVITIES	41	11	16
D	PERFORMING RESPIRATORY PROTECTION (RP) PROGRAM ACTIVITIES	10	3	1
E	PERFORMING RADIOLOGICAL HEALTH PROGRAM ACTIVITIES	3	5	3
F	PERFORMING BIOENVIRONMENTAL SUPPORT OF MISSILE AND SHUTTLE OPERATIONS	0	0	-
G	PERFORMING OR PRACTICING PEACETIME DISASTER OPERATIONS	-	6	2
H	PERFORMING OR PRACTICING WARTIME DISASTER OPERATIONS	3	31	4
I	PERFORMING MEDICAL READINESS ACTIVITIES	1	11	3
J	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	6	13	45
K	PERFORMING TRAINING ACTIVITIES	1	10	13
L	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	2	2	3
M	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	17	1	4

" - " indicates less than 1 percent

TABLE 4

SELECTED BACKGROUND DATA FOR SPECIALTY CLUSTERS AND JOBS

	Industrial Hygiene Cluster (STG064)	Respiratory Protection Job (STG074)	Environmental Monitoring Cluster (STG022)
NUMBER IN GROUP	361	11	27
PERCENT OF SAMPLE	67%	2%	5%
PERCENT IN CONUS	88%	91%	81%
SKILL-LEVEL DISTRIBUTION:			
4B031	24%	73%	52%
4B051	47%	18%	41%
4B071	28%	9%	4%
4B091	1%	0%	3%
ADDITIONAL INFORMATION			
PREDOMINANT GRADE(S)	E-4 & E-5	E-3	E-3
AVERAGE MONTHS IN CAREER FIELD FOR AD MEMBERS	76	27	59
AVERAGE TAFMS FOR AD MEMBERS	87	30	69
PERCENT WITH 1–48 MOS IN CAREER FIELD FOR AD MEMBERS	41%	90%	59%
PERCENT SUPERVISING	44%	18%	22%
AVERAGE NUMBER OF TASKS PERFORMED	209	52	62

TABLE 4 (CONTINUED)

SELECTED BACKGROUND DATA FOR SPECIALTY CLUSTERS AND JOBS

	Equipment Job (STG072)	Readiness Job (STG071)	Management Cluster (STG042)
NUMBER IN GROUP	8	8	55
PERCENT OF SAMPLE	2%	1%	10%
PERCENT IN CONUS	88%	100%	84%
SKILL-LEVEL DISTRIBUTION:			
4B031	63%	0%	0%
4B051	37%	38%	27%
4B071	0%	62%	53%
4B091	0%	0%	20%
ADDITIONAL INFORMATION			
PREDOMINANT GRADE(S)	E-3 & E-4	E-6	E-6 & E-7
AVERAGE MONTHS IN CAREER FIELD FOR AD MEMBERS	45	143	174
AVERAGE TAFMS FOR AD MEMBERS	48	184	196
PERCENT WITH 1–48 MOS IN CAREER FIELD FOR AD MEMBERS	88%	0%	0%
PERCENT SUPERVISING	0%	37%	89%
AVERAGE NUMBER OF TASKS PERFORMED	96	114	114

TABLE 5

SPECIALTY CLUSTER AND JOB COMPARISONS
BETWEEN CURRENT SURVEY AND 1996 SURVEY

CURRENT SURVEY (N=537)	%	1996 SURVEY (N=537)	%
INDUSTRIAL HYGIENE CLUSTER	67	INDUSTRIAL HYGIENE CLUSTER	73
Hazardous Materials (HAZMAT) Job		HAZARDOUS MATERIALS (HAZMAT) PHARMACY SPECIALIST JOB	1
RESPIRATORY PROTECTION JOB	2	*	
ENVIRONMENTAL MONITORING CLUSTER	5	ENVIRONMENTAL PROTECTION JOB	6
EQUIPMENT JOB	2	SUPPLY JOB	1
READINESS JOB	2	CONTINGENCY SUPPORT JOB	1
MANAGEMENT CLUSTER	10	SUPERVISORY CLUSTER	7
*		RADIOLOGICAL HEALTH JOB	1
*		TRAINING JOB	1
NOT GROUPED	12	NOT GROUPED	9

" * " indicates no match in report

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as the AFMAN 36-2108, *Airman Classification,* Specialty Description and the Career Field Education and Training Plan (CFETP), reflect what career ladder personnel are actually doing in the field.

The distribution of skill-level groups *for the total survey sample* (AD, ANG, and AFRC members) across the career ladder jobs and clusters is displayed in Table 6, while Table 7 offers another perspective by displaying the relative percent time spent on each duty across skill-level groups. A typical pattern of progression is noted within the AFSC 4B0X1 career ladder. Personnel at the 3- and 5-skill levels work in the technical jobs of the career ladder and spend most of their time on technical tasks. As incumbents progress to the 7-skill level, they spend almost twice as much time as the 5-skill level members on supervisory and training activities but still spend over 60 percent of their time performing the technical tasks of the career ladder. The 9-skill level members spend almost half of their time performing specific management and supervisory activities and one-third of their time on AFSC-specific technical tasks.

Skill-level descriptions are provided for all of the AD and AFRC members within the sample but not for the 5-skill level ANG members since there are only two ANG DAFSC 4B051 members in the survey sample. Listing the relative percent time spent on duties for these two ANG members and comparing their percent time spent to the AD and AFRC DAFSC 4B051 members would tend to inflate the AFRC percentages.

TABLE 6

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS SPECIALTY CLUSTERS AND JOBS
(PERCENT RESPONDING)

SPECIALTY CLUSTERS AND JOBS		4B031 (N=133)	4B051 (N=234)	4B071 (N=154)	4B091 (N=16)
I.	INDUSTRIAL HYGIENE CLUSTER	65	73	66	25
II.	RESPIRATORY PROTECTION JOB	6	1	1	0
III.	ENVIRONMENTAL MONITORING CLUSTER	11	5	1	6
IV.	EQUIPMENT JOB	4	1	0	0
V.	READINESS JOB	0	1	3	0
VI.	MANAGEMENT CLUSTER	0	6	19	69
VII.	NOT GROUPED	14	13	10	0

" - " indicates less than 1 percent

TABLE 7

RELATIVE PERCENT TIME SPENT ON DUTIES BY DAFSC GROUPS

DUTIES		4B031 (N=133)	4B051 (N=234)	4B071 (N=154)	4B091 (N=16)
A	MONITORING DRINKING WATER, SWIMMING POOLS, OR SPAS	18	9	5	3
B	PERFORMING ENVIRONMENTAL MONITORING	7	6	7	5
C	PERFORMING INDUSTRIAL HYGIENE PROGRAM ACTIVITIES	47	42	30	13
D	PERFORMING RESPIRATORY PROTECTION (RP) PROGRAM ACTIVITIES	10	6	4	1
E	PERFORMING RADIOLOGICAL HEALTH PROGRAM ACTIVITIES	5	7	7	4
F	PERFORMING BIOENVIRONMENTAL SUPPORT OF MISSILE AND SHUTTLE OPERATIONS	-	-	-	-
G	PERFORMING OR PRACTICING PEACETIME DISASTER OPERATIONS	1	2	2	1
H	PERFORMING OR PRACTICING WARTIME DISASTER OPERATIONS	3	5	6	4
I	PERFORMING MEDICAL READINESS ACTIVITIES	2	3	4	4
J	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2	11	21	49
K	PERFORMING TRAINING ACTIVITIES	1	4	8	8
L	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1	1	2	5
M	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	2	3	3	2

" - " indicates less than 1 percent

AD Skill-Level Descriptions

As of January 2000, a total of 823 AD members were assigned to AFSC 4B0X1. A total of 666 disks were mailed to AD personnel with 579 disks returned and 438 members in the final sample. A total of 141 disks could not be used.

The distribution of skill-level groups for the AD survey sample across the career ladder jobs and clusters is displayed in Table 8 and shows that the majority of the AD sample for the 3- and 5-skill levels perform tasks associated with the Industrial Hygiene Cluster. The 7-skill level members are almost evenly split between the Industrial Hygiene Cluster and the Management Cluster with 48 percent and 40 percent, respectively. Sixty-nine percent of the 9-skill level members perform tasks associated with the Management Cluster.

DAFSC 4B031. Representing 25 percent of the survey sample, these 133 airmen perform an average of 115 tasks. Table 9 reflects the percent time spent on duties by AD DAFSC 4B031 personnel. Members holding DAFSC 4B031 spend 91 percent of their time performing technical bioenvironmental engineering tasks in Duties A through H. Forty-seven percent of their time is spent Performing Industrial Hygiene Program Activities of Duty C. They also spend 18 percent of their relative time Monitoring Drinking Water, Swimming Pools, or Spas (Duty A). Representative tasks performed by these members are listed in Table 10.

DAFSC 4B051. The 224 members of this group account for 42 percent of the survey sample and perform an average of 166 tasks. Table 9 provides a comparison of the relative time spent on duties at the 5-skill level. This table shows a decrease in the amount of time spent performing technical tasks in four bioenvironmental engineering duty areas. The 5-skill level members also spend slightly more time Performing Radiological Health Program Activities (Duty E), Performing or Practicing Peacetime Disaster Operations (Duty G), and Performing or Practicing Wartime Disaster Operations (Duty H). The DAFSC 4B051 members spend over five times as much time Performing Management and Supervisory Activities (Duty J) and four times as much time Performing Training Activities (Duty K).

Table 11 lists representative tasks performed by these DAFSC 4B051 personnel. Table 12 reflects those tasks which best differentiate the 3-skill levels from the 5-skill levels. This table shows that only two tasks are being performed by a larger percentage of 3-skill level members, and both include collecting water samples. In contrast, a much larger percentage of 5-skill level members are performing many tasks performed by a very small percentage of 3-skill levels. These are primarily management and supervisory activities and training activities.

DAFSC 4B071. These 65 members perform an average of 175 tasks and represent 12 percent of the survey sample. Table 9 reflects the percent time spent on duties by DAFSC 4B071 members and shows decreases in the amount of time spent by members performing the technical tasks in five out of eight AFSC-specific duty areas. Fifty-three percent of their time is spent on nontechnical tasks involving medical readiness, management and supervision, training, administration, and supplies and equipment. This is an increase in time spent performing nontechnical tasks of 32 percent compared to the 5-skill level members. They spend almost one-third of their time performing management and supervisory tasks.

Representative tasks performed by 7-skill level members are reflected in Table 13. Table 14 reflects tasks which best differentiate between 5- and 7-skill levels. This table shows a higher percentage of 5-skill level members performing specific industrial hygiene program tasks, including the calibration of noise dosimeters and the collection of area air samples from industrial environments. However, the most significant difference in the performance of tasks between the AD 5-skill level and 7-skill level members is revealed in the management and supervisory area with at least 39 percent more DAFSC 4B071 members performing tasks such as drafting budget requirements, writing or indorsing military performance reports or appraisals, and evaluating workload requirements.

DAFSC 4B091. The 16 members who hold the 9-skill level represent 3 percent of the survey sample and perform an average of 176 tasks. Table 9 reflects the percent time spent on duties by DAFSC 4B091 members and shows an increase in the amount of time spent by members performing tasks in only one area of technical bioenvironmental engineering activities. The 9-skill levels spend slightly more time Performing Environmental Monitoring Activities (Duty B). Sixty-eight percent of their time is spent on tasks that are not specific to the Bioenvironmental Engineering AFSC involving medical readiness, management and supervision, training, administration, and supplies and equipment. This is an increase in time spent performing nontechnical tasks of 15 percent compared to the 7-skill level members. The DAFSC 4B091 members spend almost 50 percent of their time performing management and supervisory tasks.

Table 15 displays the representative tasks performed by 9-skill level members while Table 16 reflects tasks which best differentiate between 7- and 9-skill levels. A higher percentage of 7-skill level members are performing several industrial hygiene program tasks involving air sampling, hazardous materials, and ergonomics. The most significant difference in the performance of specific tasks between the AD 7-skill level and 9-skill level members is clearly revealed in the management and supervisory area with at least 30 percent more DAFSC 4B091 members performing managerial tasks such as reviewing expenditures, initiating personnel action requests, and writing replies to inspection reports.

AD Skill-Level Analysis Summary

Progression in the Bioenvironmental Engineering career ladder follows a regular pattern of highly technical job focus at the 3- and 5-skill levels with a broadening into supervision and management at the 7- and 9-skill levels. The 3-skill levels spend more of their relative time performing industrial hygiene program activities as well as water monitoring activities compared to the 5-skill levels, but the 3- and 5-skill level airmen perform many tasks in common. Both groups spend the majority of their time performing technical bioenvironmental engineering tasks while the 5-skill level members demonstrate a slight shift into supervisory and management tasks. At the 7-skill level, members still perform a substantial number of technical tasks but demonstrate a much stronger shift toward higher-level supervisory functions with an increase of 21 percent time spent compared to the 5-skill level members. The 9-skill levels spend almost half of their time managing and supervising the daily bioenvironmental engineering activities and only a third of their time performing technical tasks performed by the 3-, 5-, and 7-skill level members.

TABLE 8

DISTRIBUTION OF AD DAFSC GROUP MEMBERS ACROSS SPECIALTY CLUSTERS AND JOBS
(PERCENT RESPONDING)

SPECIALTY CLUSTERS AND JOBS		4B031 (N=133)	4B051 (N=224)	4B071 (N=65)	4B091 (N=16)
I.	INDUSTRIAL HYGIENE CLUSTER	65	75	48	25
II.	RESPIRATORY PROTECTION JOB	6	1	0	0
III.	ENVIRONMENTAL MONITORING CLUSTER	11	5	2	6
IV.	EQUIPMENT JOB	4	1	0	0
V.	READINESS JOB	0	1	2	0
VI.	MANAGEMENT CLUSTER	0	7	40	69
VII.	NOT GROUPED	14	10	8	0

TABLE 9

RELATIVE PERCENT TIME SPENT ON DUTIES BY AD DAFSC 4B0X1 GROUPS

DUTIES		4B031 (N=133)	4B051 (N=224)	4B071 (N=65)	4B091 (N=16)
A	MONITORING DRINKING WATER, SWIMMING POOLS, OR SPAS	18	10	4	3
B	PERFORMING ENVIRONMENTAL MONITORING	7	6	4	5
C	PERFORMING INDUSTRIAL HYGIENE PROGRAM ACTIVITIES	47	42	23	13
D	PERFORMING RESPIRATORY PROTECTION (RP) PROGRAM ACTIVITIES	10	6	3	1
E	PERFORMING RADIOLOGICAL HEALTH PROGRAM ACTIVITIES	5	7	5	4
F	PERFORMING BIOENVIRONMENTAL SUPPORT OF MISSILE AND SHUTTLE OPERATIONS	-	-	-	-
G	PERFORMING OR PRACTICING PEACETIME DISASTER OPERATIONS	1	2	2	1
H	PERFORMING OR PRACTICING WARTIME DISASTER OPERATIONS	3	5	5	4
I	PERFORMING MEDICAL READINESS ACTIVITIES	2	2	3	4
J	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2	11	32	49
K	PERFORMING TRAINING ACTIVITIES	1	4	11	8
L	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1	1	3	5
M	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	2	3	4	2

" - " indicates less than 1 percent

TABLE 10

REPRESENTATIVE TASKS PERFORMED BY AD DAFSC 4B031 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=133)
C0239	Perform noise dosimetry	80
C0174	Calibrate noise dosimeters	76
D0287	Perform quantitative fit-testings	74
C0218	Identify hazardous noise sources	74
C0246	Perform sound-level measurements	74
A0004	Collect potable water samples	73
C0223	Interview shop personnel	73
C0264	Research material safety data sheets (MSDSs)	73
C0266	Research OSHA standards	72
C0167	Calibrate air sampling pumps	72
C0270	Review industrial case files	71
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	71
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	71
C0261	Record results of industrial hygiene surveys	70
C0201	Evaluate hearing protection devices	70
C0181	Collect breathing zone or personal air samples	70
C0250	Prepare industrial hygiene reports	68
C0210	Evaluate results of noise measurements	68
C0178	Calibrate sound-level meters	67
C0186	Construct or maintain industrial case files, other than Tab F	66
C0242	Perform periodic ventilation measurements	66
C0224	Inventory chemicals	65
C0241	Perform octave-band noise measurements	65
C0213	Evaluate ventilation rates	63
C0265	Research National Institute for Occupational Safety and Health (NIOSH) publications	63
C0179	Collect area air samples from industrial environments	63
C0217	Identify ergonomic hazards	62
A0008	Collect water samples from swimming pools	61
C0257	Prepare or present recommendations for noise hazards controls	61
C0175	Calibrate octave-band noise analyzers	61
C0211	Evaluate shop HAZCOM programs	59
C0209	Evaluate results of air sample analyses	59
C0237	Perform instantaneous noise measurements	59
A0054	Perform pH determinations	58
C0200	Evaluate ergonomic hazards	58
C0267	Research or reference Code of Federal Regulation series	58
D0286	Perform qualitative fit-testings	57
D0279	Conduct RP training	56
D0289	Prepare RP certifications	56
C0263	Research industrial regulations	56
C0199	Evaluate engineering noise controls	56
C0222	Interpret occupational exposure limit (OEL) values or notations	54
A0046	Perform chlorine-level determinations	53

* Average Number of Tasks Performed - 115

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY AD DAFSC 4B051 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=224)
C0266	Research OSHA standards	82
C0223	Interview shop personnel	80
C0264	Research material safety data sheets (MSDSs)	80
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	79
C0218	Identify hazardous noise sources	79
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	79
C0167	Calibrate air sampling pumps	79
C0265	Research National Institute for Occupational Safety and Health (NIOSH) publications	78
C0174	Calibrate noise dosimeters	78
C0210	Evaluate results of noise measurements	76
C0211	Evaluate shop HAZCOM programs	75
C0181	Collect breathing zone or personal air samples	75
C0261	Record results of industrial hygiene surveys	74
C0224	Inventory chemicals	74
C0201	Evaluate hearing protection devices	74
C0222	Interpret occupational exposure limit (OEL) values or notations	74
C0246	Perform sound-level measurements	74
C0209	Evaluate results of air sample analyses	74
C0250	Prepare industrial hygiene reports	73
C0186	Construct or maintain industrial case files, other than Tab F	73
C0267	Research or reference Code of Federal Regulation series	73
C0178	Calibrate sound-level meters	73
C0270	Review industrial case files	71
C0263	Research industrial regulations	71
C0239	Perform noise dosimetry	71
C0213	Evaluate ventilation rates	71
C0217	Identify ergonomic hazards	71
C0237	Perform instantaneous noise measurements	70
C0179	Collect area air samples from industrial environments	70
D0287	Perform quantitative fit-testings	69
C0257	Prepare or present recommendations for noise hazards controls	69
C0221	Identify risk of chemical exposures	68
C0242	Perform periodic ventilation measurements	68
C0189	Determine or establish administrative controls for chemical hazards	67
C0200	Evaluate ergonomic hazards	67
C0190	Determine or establish air sampling tactics or strategies	66
C0191	Determine or establish follow-up actions for air sampling results	65
C0232	Perform baseline ventilation measurements	64
C0175	Calibrate octave-band noise analyzers	64
C0219	Identify potential biological health hazards	64
C0245	Perform shop briefings for chemical or physical hazards	62
C0216	Identify confined-space hazards	62
C0197	Evaluate contact or absorption hazards	61

* Average Number of Tasks Performed - 166

TABLE 12

TASKS WHICH BEST DIFFERENTIATE BETWEEN AD DAFSC 4B031 AND DAFSC 4B051 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 4B031 (N=133)	DAFSC 4B051 (N=224)	DIFFERENCE
A0004	Collect potable water samples	73	50	23
A0008	Collect water samples from swimming pools	61	40	21
K0570	Counsel trainees on training progress	4	48	-44
J0489	Counsel subordinates concerning personal matters	3	46	-43
J0487	Conduct supervisory performance feedback sessions	3	44	-41
K0579	Evaluate progress of trainees	3	43	-40
K0569	Conduct OJT	22	60	-38
K0582	Maintain training records or files	5	42	-37
J0534	Interpret policies, directives, or procedures for subordinates	4	39	-36
J0525	Evaluate personnel for compliance with performance standards	4	40	-36
J0561	Write recommendations for awards or decorations	2	38	-36
J0533	Inspect personnel for compliance with military standards	5	42	-36
K0571	Determine training requirements	2	36	-34
J0514	Establish performance standards for subordinates	2	37	-34
K0578	Evaluate personnel to determine training needs	2	37	-34
J0486	Conduct supervisory orientations for newly assigned personnel	2	34	-33
K0564	Administer or score tests	1	34	-33
J0540	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	23	55	-32
J0526	Evaluate personnel for promotion, demotion, reclassification, or special awards	2	34	-32
J0560	Write or indorse military performance reports or appraisals	2	34	-32
J0497	Develop or establish work methods or procedures	5	35	-30
I0463	Participate in small arms training	14	44	-30
K0566	Brief personnel concerning training programs or matters	8	38	-30
J0528	Evaluate work schedules	4	33	-29
J0550	Plan or schedule work assignments or priorities	5	34	-29
J0519	Evaluate job hazards or compliance with AFOSH program	19	48	-29

TABLE 13

REPRESENTATIVE TASKS PERFORMED BY AD DAFSC 4B071 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=65)
J0540	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	85
J0534	Interpret policies, directives, or procedures for subordinates	80
K0569	Conduct OJT	77
J0560	Write or indorse military performance reports or appraisals	77
J0487	Conduct supervisory performance feedback sessions	77
J0533	Inspect personnel for compliance with military standards	77
J0561	Write recommendations for awards or decorations	75
C0266	Research OSHA standards	75
J0482	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	74
J0525	Evaluate personnel for compliance with performance standards	74
J0489	Counsel subordinates concerning personal matters	74
J0514	Establish performance standards for subordinates	74
J0498	Develop or establish work schedules	72
J0486	Conduct supervisory orientations for newly assigned personnel	72
C0264	Research material safety data sheets (MSDSs)	72
J0513	Establish organizational policies, such as OIs or standard operating procedures (SOPs)	71
K0566	Brief personnel concerning training programs or matters	69
K0582	Maintain training records or files	69
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	69
J0539	Participate in councils, boards, or committee meetings, such as base facility boards or environment protection committees	69
J0529	Evaluate workload requirements	69
J0526	Evaluate personnel for promotion, demotion, reclassification, or special awards	69
C0267	Research or reference Code of Federal Regulation series	68
J0531	Initiate actions required due to substandard performance of personnel	68
J0484	Conduct self-inspections or self-assessments	68
K0578	Evaluate personnel to determine training needs	66
J0528	Evaluate work schedules	66
J0555	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	66
J0509	Draft budget requirements	65
K0571	Determine training requirements	63
J0550	Plan or schedule work assignments or priorities	63
C0263	Research industrial regulations	63
C0270	Review industrial case files	62
J0517	Evaluate budget requirements	62
J0497	Develop or establish work methods or procedures	62
J0490	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	62
C0223	Interview shop personnel	62
C0265	Research National Institute for Occupational Safety and Health (NIOSH) publications	62
K0579	Evaluate progress of trainees	60
J0563	Write staff studies, surveys, or routine reports, other than training or inspection reports	60

* Average Number of Tasks Performed - 175

TABLE 14

TASKS WHICH BEST DIFFERENTIATE BETWEEN AD DAFSC 4B051 AND DAFSC 4B071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		4B051 (N=224)	4B071 (N=65)	DIFFERENCE
C0174	Calibrate noise dosimeters	78	40	38
C0179	Collect area air samples from industrial environments	70	34	36
C0218	Identify hazardous noise sources	79	45	34
C0175	Calibrate octave-band noise analyzers	64	31	34
C0237	Perform instantaneous noise measurements	70	37	33
C0246	Perform sound-level measurements	74	42	32
C0240	Perform noise impact or impulse measurements	57	26	31
C0181	Collect breathing zone or personal air samples	75	45	31
C0239	Perform noise dosimetry	71	40	31
C0178	Calibrate sound-level meters	73	43	30
C0210	Evaluate results of noise measurements	76	46	30
C0224	Inventory chemicals	74	45	29
C0201	Evaluate hearing protection devices	74	45	29
J0509	Draft budget requirements	17	65	-48
J0517	Evaluate budget requirements	16	62	-45
J0560	Write or indorse military performance reports or appraisals	34	77	-43
J0555	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	25	66	-42
J0534	Interpret policies, directives, or procedures for subordinates	39	80	-41
J0480	Assign personnel to work areas or duty positions	16	57	-41
J0492	Develop organizational or functional charts	14	55	-41
J0498	Develop or establish work schedules	33	72	-40
J0481	Assign sponsors for newly assigned personnel	16	55	-40
J0529	Evaluate workload requirements	29	69	-40
J0531	Initiate actions required due to substandard performance of personnel	27	68	-40
J0558	Write job or position descriptions	12	51	-39

TABLE 15

REPRESENTATIVE TASKS PERFORMED BY AD DAFSC 4B091 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=16)
J0534	Interpret policies, directives, or procedures for subordinates	100
J0561	Write recommendations for awards or decorations	100
J0489	Counsel subordinates concerning personal matters	100
J0540	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	100
J0560	Write or indorse military performance reports or appraisals	94
J0533	Inspect personnel for compliance with military standards	94
J0497	Develop or establish work methods or procedures	94
J0555	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	94
J0532	Initiate personnel action requests	88
J0539	Participate in councils, boards, or committee meetings, such as base facility boards or environment protection committees	88
J0517	Evaluate budget requirements	88
J0498	Develop or establish work schedules	88
J0481	Assign sponsors for newly assigned personnel	88
J0513	Establish organizational policies, such as OIs or standard operating procedures (SOPs)	88
J0494	Develop self-inspection or self-assessment program checklists	88
J0492	Develop organizational or functional charts	88
J0490	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	88
J0482	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	81
K0566	Brief personnel concerning training programs or matters	81
J0480	Assign personnel to work areas or duty positions	81
J0487	Conduct supervisory performance feedback sessions	81
J0526	Evaluate personnel for promotion, demotion, reclassification, or special awards	81
J0525	Evaluate personnel for compliance with performance standards	81
J0542	Plan briefings, conferences, or workshops	81
J0514	Establish performance standards for subordinates	81
J0552	Review expenditures	81
J0531	Initiate actions required due to substandard performance of personnel	81
J0509	Draft budget requirements	81
J0508	Draft agenda for general meetings, such as staff meetings, briefings, conferences, or workshops	81
J0518	Evaluate inspection report findings or inspection procedures	81
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	81
J0551	Review drafts of supplements or changes to directives, such as policy directives, instructions, or manuals	81
J0528	Evaluate work schedules	75
J0529	Evaluate workload requirements	75
J0484	Conduct self-inspections or self-assessments	75
L0589	Coordinate obtaining TDY orders with appropriate agencies	75
J0521	Evaluate job-related suggestions	75
K0578	Evaluate personnel to determine training needs	75

* Average Number of Tasks Performed - 176

TABLE 16

TASKS WHICH BEST DIFFERENTIATE BETWEEN AD DAFSC 4B071 AND DAFSC 4B091 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		4B071 (N=65)	4B091 (N=16)	DIFFERENCE
K0569	Conduct OJT	77	44	33
C0209	Evaluate results of air sample analyses	54	25	29
C0168	Calibrate carbon monoxide detectors	40	13	28
M0614	Evaluate serviceability of equipment, tools, parts, or supplies	46	19	27
C0211	Evaluate shop HAZCOM programs	52	25	27
C0167	Calibrate air sampling pumps	52	25	27
C0226	Monitor IEX coded materials	31	6	25
H0418	Perform air sampling analyses during radiological mishaps	37	13	24
C0269	Review hazardous materials through HAZMAT pharmacy	43	19	24
D0278	Brief shop supervisors on RP issues	43	19	24
G0387	Maintain PPE	43	19	24
M0621	Inventory equipment, tools, parts, or supplies	43	19	24
C0217	Identify ergonomic hazards	43	19	24
J0494	Develop self-inspection or self-assessment program checklists	48	88	-40
J0552	Review expenditures	43	81	-38
J0518	Evaluate inspection report findings or inspection procedures	48	81	-34
J0532	Initiate personnel action requests	54	88	-34
J0512	Draft supplements or changes to directives, such as policy directives, instructions, or manuals	42	75	-33
J0556	Schedule staff assistance visits, inspections, or audits	31	63	-32
L0599	Initiate or maintain standby rosters or workcenter pyramid recall rosters	31	63	-32
J0496	Develop inputs to mobility, contingency, disaster preparedness, or unit emergency or alert plans	43	75	-32
J0562	Write replies to inspection reports	43	75	-32
J0492	Develop organizational or functional charts	55	88	-32

ANG Skill-Level Descriptions

A total of 183 ANG members were assigned to AFSC 4B0X1 as of January 2000. ANG personnel were mailed a total of 172 disks with 93 disks returned. Seventy-eight of those ANG members were included in the final sample. Fifteen disks could not be used.

Table 17 displays the distribution of skill-level groups for the ANG survey sample across the career ladder clusters and jobs. This table shows that one 5-skill level is in the Industrial Hygiene Cluster with the other 5-skill level not grouped into any identified cluster or job. The majority of the ANG 7-skill levels in the sample perform tasks associated with the Industrial Hygiene Cluster while 11 percent are not grouped.

DAFSC 4B051. Only two ANG 5-skill level members are included in the final sample. As a result, the tasks performed by these members are not representative of the tasks performed by the assigned 5-skill level members. Also, the ANG 5-skill level members are not included in any comparison with other ANG sample members or 5-skill level members from the AD and AFRC components.

DAFSC 4B071. These 76 members representing 14 percent of the total survey sample perform an average of 235 tasks, 60 more tasks than their AD 7-skill level peers. Table 18 reflects the percent time spent on duties by ANG DAFSC 4B071 members, and Table 19 shows representative tasks performed by these members. The largest percentage of the ANG 7-skill level members are spending their time Performing Industrial Hygiene Program Activities (Duty C), including calibrating air sampling pumps, calibrating noise dosimeters, and performing sound-level measurements.

ANG Skill-Level Analysis Summary

Progression for ANG members in the Bioenvironmental Engineering career ladder could not be analyzed since only two 5-skill level members were included in the final sample. The ANG DAFSC 4B071 members spend two-thirds of their relative time performing AFSC specific technical tasks primarily related to industrial hygiene program activities.

TABLE 17

DISTRIBUTION OF ANG DAFSC GROUP MEMBERS ACROSS SPECIALTY CLUSTERS AND JOBS
(PERCENT RESPONDING)

SPECIALTY CLUSTERS AND JOBS		4B051 (N=2)	4B071 (N=76)
I.	INDUSTRIAL HYGIENE CLUSTER	50	82
II.	RESPIRATORY PROTECTION JOB	0	2
III.	ENVIRONMENTAL MONITORING CLUSTER	0	0
IV.	EQUIPMENT JOB	0	0
V.	READINESS JOB	0	3
VI.	MANAGEMENT CLUSTER	0	2
VII.	NOT GROUPED	50	11

TABLE 18

RELATIVE PERCENT TIME SPENT ON DUTIES BY ANG DAFSC 4B071 GROUP

DUTIES		4B071 (N=76)
A	MONITORING DRINKING WATER, SWIMMING POOLS, OR SPAS	5
B	PERFORMING ENVIRONMENTAL MONITORING	10
C	PERFORMING INDUSTRIAL HYGIENE PROGRAM ACTIVITIES	38
D	PERFORMING RESPIRATORY PROTECTION (RP) PROGRAM ACTIVITIES	5
E	PERFORMING RADIOLOGICAL HEALTH PROGRAM ACTIVITIES	8
F	PERFORMING BIOENVIRONMENTAL SUPPORT OF MISSILE AND SHUTTLE OPERATIONS	-
G	PERFORMING OR PRACTICING PEACETIME DISASTER OPERATIONS	2
H	PERFORMING OR PRACTICING WARTIME DISASTER OPERATIONS	7
I	PERFORMING MEDICAL READINESS ACTIVITIES	4
J	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	11
K	PERFORMING TRAINING ACTIVITIES	4
L	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	2
M	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	3

" - " indicates less than 1 percent

TABLE 19

REPRESENTATIVE TASKS PERFORMED BY ANG DAFSC 4B071 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=76)
C0167	Calibrate air sampling pumps	93
C0174	Calibrate noise dosimeters	92
C0246	Perform sound-level measurements	91
C0239	Perform noise dosimetry	88
C0210	Evaluate results of noise measurements	88
C0223	Interview shop personnel	88
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	87
C0178	Calibrate sound-level meters	87
C0175	Calibrate octave-band noise analyzers	87
C0186	Construct or maintain industrial case files, other than Tab F	86
C0224	Inventory chemicals	86
C0181	Collect breathing zone or personal air samples	84
C0270	Review industrial case files	83
C0264	Research material safety data sheets (MSDSs)	83
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	83
C0266	Research OSHA standards	83
C0209	Evaluate results of air sample analyses	83
C0218	Identify hazardous noise sources	83
C0211	Evaluate shop HAZCOM programs	82
H0420	Perform fit testings for chemical warfare masks	80
C0242	Perform periodic ventilation measurements	80
C0265	Research National Institute for Occupational Safety and Health (NIOSH) publications	80
C0189	Determine or establish administrative controls for chemical hazards	80
C0216	Identify confined-space hazards	80
C0250	Prepare industrial hygiene reports	79
C0269	Review hazardous materials through HAZMAT pharmacy	79
D0284	Identify OSHA or other respiratory protection requirements	79
C0261	Record results of industrial hygiene surveys	78
C0179	Collect area air samples from industrial environments	78
C0221	Identify risk of chemical exposures	78
C0164	Assign chemical issue exception (IEX) codes	78
C0241	Perform octave-band noise measurements	78
C0191	Determine or establish follow-up actions for air sampling results	78
C0190	Determine or establish air sampling tactics or strategies	78
C0222	Interpret occupational exposure limit (OEL) values or notations	76
C0213	Evaluate ventilation rates	76
C0257	Prepare or present recommendations for noise hazards controls	76
C0267	Research or reference Code of Federal Regulation series	75
C0237	Perform instantaneous noise measurements	75
C0245	Perform shop briefings for chemical or physical hazards	75
C0201	Evaluate hearing protection devices	75
D0278	Brief shop supervisors on RP issues	75
C0263	Research industrial regulations	74

* Average Number of Tasks Performed - 235

AFRC Skill-Level Descriptions

A total of 55 AFRC members were assigned to AFSC 4B0X1 as of January 2000. AFRC personnel were mailed a total of 52 disks with 38 disks returned. Twenty-one of those AFRC members were included in the final sample. Seventeen disks could not be used.

The distribution of skill-level groups for the AFRC survey sample across the career ladder clusters and jobs is shown in Table 20. This table shows that half of the AFRC 5-skill level members are not grouped into any identified cluster or job. Thirty-eight percent of the 5-skill levels are in the Industrial Hygiene Cluster. The majority of the AFRC 7-skill levels in the sample perform tasks associated with the Industrial Hygiene Cluster. The remaining 45 percent are evenly split between the Readiness Job, the Management Cluster, and Not Grouped.

DAFSC 4B051. The eight members of this group perform an average of 128 tasks. Table 21 provides a comparison of the relative time spent on duties at the 5-skill level and shows that 66 percent of their relative time is spent performing the technical tasks of Duties A through H. This table also shows that AFRC DAFSC 4B051 personnel spend 28 percent of their time Performing Industrial Hygiene Program Activities (Duty C) and 11 percent of their time Performing or Practicing Wartime Disaster Operations (Duty H). Table 22 lists representative tasks performed by these AFRC DAFSC 4B051 personnel. The job performed by these members appears to be very diversified with 50 percent of the members performing tasks in 10 out of the 13 duty areas ranging from environmental monitoring to administrative activities.

DAFSC 4B071. These 13 members perform an average of 223 tasks and represent 2 percent of the total survey sample. Table 21 reflects the percent time spent on duties by AFRC DAFSC 4B071 members and shows slight decreases in the amount of time spent by members performing tasks in six of the eight technical duty areas compared to the AFRC 5-skill level personnel. The 7-skill level members are spending the same relative amount of time as the 5-skill levels in activities related to Monitoring Drinking Water, Swimming Pools, or Spas (Duty A). The most significant differences in the time spent performing the technical tasks by the two skill levels is in the respiratory protection program (Duty D) and wartime disaster operations (Duty H) with 3 percent fewer 7-skill levels performing activities in these duty areas. The AFRC DAFSC 4B071 members also spend an average of 12 percent more time performing nontechnical tasks compared to the AFRC 5-skill level members.

Representative tasks performed by AFRC 7-skill level members are revealed in Table 23. Table 24 shows tasks that best differentiate between AFRC 5- and 7-skill levels. A higher percentage of AFRC DAFSC 4B051 members are performing specific environmental monitoring tasks, including collecting bulk industrial hygiene samples and collecting air samples for environmental analyses, as well as certain medical readiness tasks, such as conducting and reviewing predeployment or postdeployment questionnaires. In contrast, many more 7-skill level members are performing tasks related to industrial hygiene (Duty C), wartime disaster operations (Duty H), and management and supervision (Duty J) compared to the AFRC 5-skill level members. Two of the industrial hygiene program tasks – preparing or presenting recommendations for confined space hazard controls and monitoring issue exception (IEX) coded materials – performed by over 50 percent of the 7-skill levels are not performed by any of the AFRC 5-skill level members in the sample.

AFRC Skill-Level Analysis Summary

Progression for AFRC members in the Bioenvironmental Engineering career ladder follows a normal pattern with a concentration on technical tasks at both the 5- and 7-skill levels. The most significant distinction in the tasks performed in the upgrade from the 5- to the 7-skill level for AFRC members is in the performance of nontechnical activities with an increase of 11 percent in the performance of management and supervisory tasks along with increases in the performance of training, supply, and equipment activities at the 7-skill level.

TABLE 20

DISTRIBUTION OF AFRC DAFSC GROUP MEMBERS ACROSS SPECIALTY CLUSTERS AND JOBS
(PERCENT RESPONDING)

SPECIALTY CLUSTERS AND JOBS		4B051 (N=8)	4B071 (N=13)
I.	INDUSTRIAL HYGIENE CLUSTER	38	55
II.	RESPIRATORY PROTECTION JOB	0	0
III.	ENVIRONMENTAL MONITORING CLUSTER	0	0
IV.	EQUIPMENT JOB	0	0
V.	READINESS JOB	12	15
VI.	MANAGEMENT CLUSTER	0	15
VII.	NOT GROUPED	50	15

TABLE 21

RELATIVE PERCENT TIME SPENT ON DUTIES BY AFRC DAFSC 4B0X1 GROUPS

DUTIES		4B051 (N=8)	4B071 (N=13)
A	MONITORING DRINKING WATER, SWIMMING POOLS, OR SPAS	4	4
B	PERFORMING ENVIRONMENTAL MONITORING	6	4
C	PERFORMING INDUSTRIAL HYGIENE PROGRAM ACTIVITIES	28	26
D	PERFORMING RESPIRATORY PROTECTION (RP) PROGRAM ACTIVITIES	9	6
E	PERFORMING RADIOLOGICAL HEALTH PROGRAM ACTIVITIES	5	4
F	PERFORMING BIOENVIRONMENTAL SUPPORT OF MISSILE AND SHUTTLE OPERATIONS	-	-
G	PERFORMING OR PRACTICING PEACETIME DISASTER OPERATIONS	3	2
H	PERFORMING OR PRACTICING WARTIME DISASTER OPERATIONS	11	8
I	PERFORMING MEDICAL READINESS ACTIVITIES	9	7
J	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	11	22
K	PERFORMING TRAINING ACTIVITIES	6	10
L	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	5	3
M	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	2	3

" - " indicates less than 1 percent

TABLE 22

REPRESENTATIVE TASKS PERFORMED BY AFRC DAFSC 4B051 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=8)
D0287	Perform quantitative fit-testings	100
H0420	Perform fit testings for chemical warfare masks	75
J0540	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	75
E0318	Exchange thermoluminescent dosimeters (TLDs)	75
C0266	Research OSHA standards	75
C0181	Collect breathing zone or personal air samples	75
C0223	Interview shop personnel	75
C0167	Calibrate air sampling pumps	75
L0610	Write minutes of briefings, conferences, or meetings	75
C0265	Research National Institute for Occupational Safety and Health (NIOSH) publications	75
C0264	Research material safety data sheets (MSDSs)	75
C0174	Calibrate noise dosimeters	75
C0224	Inventory chemicals	75
I0431	Administer or practice cardiopulmonary resuscitation (CPR)	63
K0582	Maintain training records or files	63
H0405	Don or doff PPE	63
G0387	Maintain PPE	63
C0263	Research industrial regulations	63
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	63
I0456	Maintain personal mobility bags or kits	63
J0542	Plan briefings, conferences, or workshops	63
C0267	Research or reference Code of Federal Regulation series	63
B0094	Collect bulk industrial hygiene samples, other than hazardous waste or asbestos	63
C0242	Perform periodic ventilation measurements	63
D0279	Conduct RP training	63
C0218	Identify hazardous noise sources	63
J0484	Conduct self-inspections or self-assessments	63
C0221	Identify risk of chemical exposures	63
C0237	Perform instantaneous noise measurements	63
C0239	Perform noise dosimetry	63
L0590	Destroy classified materials or documents	50
I0472	Review predeployment or postdeployment questionnaires	50
H0413	Maintain ground crew ensembles	50
E0354	Review or interpret TLD results	50
B0149	Prepare environmental samples for shipment	50
B0087	Calibrate direct reading environmental laboratory (DREL) test kits	50
C0243	Perform presurveys of local exhaust systems	50
C0261	Record results of industrial hygiene surveys	50
D0284	Identify OSHA or other respiratory protection requirements	50
D0291	Select RP equipment	50
D0285	Inspect work areas for RP compliance	50
C0245	Perform shop briefings for chemical or physical hazards	50

* Average Number of Tasks Performed - 128

TABLE 23

REPRESENTATIVE TASKS PERFORMED BY AFRC DAFSC 4B071 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=13)
J0540	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	92
D0287	Perform quantitative fit-testings	92
C0223	Interview shop personnel	85
C0185	Conduct hazardous communication (HAZCOM) training	85
C0270	Review industrial case files	85
D0279	Conduct RP training	85
J0484	Conduct self-inspections or self-assessments	85
H0430	Train medical personnel on NBC agents	85
J0482	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	77
C0266	Research OSHA standards	77
C0211	Evaluate shop HAZCOM programs	77
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	77
C0239	Perform noise dosimetry	77
I0431	Administer or practice cardiopulmonary resuscitation (CPR)	77
H0394	Brief field officials concerning types of required PPE	77
J0550	Plan or schedule work assignments or priorities	69
K0566	Brief personnel concerning training programs or matters	69
J0490	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	69
D0277	Administer respiratory protection (RP) questionnaires	69
D0286	Perform qualitative fit-testings	69
C0202	Evaluate indoor air quality	69
C0210	Evaluate results of noise measurements	69
J0487	Conduct supervisory performance feedback sessions	69
C0264	Research material safety data sheets (MSDSs)	69
C0246	Perform sound-level measurements	69
C0174	Calibrate noise dosimeters	69
C0263	Research industrial regulations	69
E0349	Review base regulations	69
C0265	Research National Institute for Occupational Safety and Health (NIOSH) publications	69
H0420	Perform fit testings for chemical warfare masks	69
C0267	Research or reference Code of Federal Regulation series	69
I0466	Perform self-aid buddy care (SABC)	69
C0259	Prepare or present recommendations for thermal or cold stress controls	69
C0241	Perform octave-band noise measurements	69
I0455	Load or unload patients on patient transportation vehicles	69
L0601	Maintain administrative files	62
K0582	Maintain training records or files	62
K0583	Personalize lesson plans	62
J0497	Develop or establish work methods or procedures	62
K0570	Counsel trainees on training progress	62
J0489	Counsel subordinates concerning personal matters	62

* Average Number of Tasks Performed - 223

TABLE 24

TASKS WHICH BEST DIFFERENTIATE BETWEEN AFRC DAFSC 4B051 AND DAFSC 4B071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		4B051 (N=8)	4B071 (N=13)	DIFFERENCE
E0318	Exchange thermoluminescent dosimeters (TLDs)	75	31	44
L0590	Destroy classified materials or documents	50	15	35
B0094	Collect bulk industrial hygiene samples, other than hazardous waste or asbestos	63	31	32
L0610	Write minutes of briefings, conferences, or meetings	75	46	29
B0091	Collect air samples for environmental analyses	50	23	27
B0087	Calibrate direct reading environmental laboratory (DREL) test kits	50	23	27
I0472	Review predeployment or postdeployment questionnaires	50	23	27
I0438	Conduct predeployment or postdeployment patient interviews	38	15	22
C0199	Evaluate engineering noise controls	13	69	-57
J0487	Conduct supervisory performance feedback sessions	13	69	-57
C0253	Prepare or present recommendations for confined space hazard controls	0	54	-54
C0226	Monitor IEX coded materials	0	54	-54
H0409	Identify placement of facility sites, such as medical sites	25	77	-52
J0482	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	25	77	-52
H0394	Brief field officials concerning types of required PPE	25	77	-52
J0562	Write replies to inspection reports	13	62	-49
J0498	Develop or establish work schedules	13	62	-49
H0429	Review or develop staff contamination control procedures	13	62	-49
H0404	Direct or advise in wartime decontamination operations	13	62	-49
L0601	Maintain administrative files	13	62	-49
C0228	Monitor RACs	13	62	-49
H0407	Identify base support requirements under wartime conditions	13	62	-49
H0396	Brief field officials concerning types of required decontamination	13	62	-49
C0165	Assign risk assessment codes (RACs)	13	62	-49
J0500	Direct industrial hygiene surveillance of workplaces	13	62	-49
C0270	Review industrial case files	38	85	-47
H0430	Train medical personnel on NBC agents	38	85	-47

Comparative Analysis of AD, ANG, and AFRC DAFSC Groups

AD AND AFRC DAFSC 4B051. Table 25 shows the relative percent time spent on the survey duty areas for AD and AFRC DAFSC 4B051 members. The AFRC 5 skill-level members spend 6 percent more time Performing or Practicing Wartime Disaster Operations (Duty H) and 7 percent more time Performing Medical Readiness Activities (Duty I). The AD 5-skill level members spend 14 percent more time Performing Industrial Hygiene Program Activities (Duty C) and 6 percent more time Monitoring Drinking Water, Swimming Pools, or Spas (Duty A) compared to their AFRC 5-skill level peers.

Table 26 displays the tasks best differentiating between AD and AFRC DAFSC 4B051 personnel. A much higher percentage of AD 5-skill level members perform specific industrial hygiene tasks, such as preparing or presenting recommendations for ergonomic hazard controls and determining or establishing administrative controls for chemical hazards, versus their AFRC counterparts. In contrast, more AFRC 5-skill level members are performing tasks in a variety of duty areas, including environmental monitoring (Duty B), radiological health program (Duty E), and medical readiness (Duty I). The AFRC members are spending at least 24 percent more time performing specific medical readiness tasks that are performed by less than 5 percent of the AD members, including reviewing predeployment or postdeployment questionnaires and conducting predeployment or postdeployment patient interviews.

AD AND ANG DAFSC 4B071. Table 27 displays the relative time spent on the duty areas for AD, ANG, and AFRC DAFSC 4B071 members. The most significant differences between the tasks performed by AD and ANG 7-skill level members are the amount of time spent Performing Industrial Hygiene Program Activities (Duty C) and Performing Management and Supervisory Activities (Duty J). The ANG DAFSC 4B071 members spend 38 percent of their time performing industrial hygiene program tasks while the AD DAFSC 4B071 members spend 23 percent of their time on similar activities. The ANG members spend only 11 percent of their relative time on managerial and supervisory tasks compared to the 32 percent time spent by the AD 7-skill level members on similar activities.

Table 28 displays tasks which best distinguish between the AD and ANG 7-skill level members. Less than 38 percent of the ANG members are performing specific management and supervisory tasks performed by over 55 percent of their AD peers. The most significant differences between the technical tasks performed by the AD and ANG members appear in the environmental monitoring, industrial hygiene program, and radiological health program areas. The ANG DAFSC 4B071 members are heavily involved in noise dosimetry, thermoluminescent dosimetry, and environmental sampling tasks performed by less than 42 percent of the AD DAFSC 4B071 members.

AD AND AFRC DAFSC 4B071. Table 27 shows that the amount of time spent performing activities by the AD and AFRC members at the 7-skill level is much more similar than the amount of time spent performing activities by the AD and ANG 7-skill level members. The most significant differences between the AFSC-specific tasks performed by AD and AFRC 7-skill level members are the amount of time spent performing activities within the following areas: Industrial Hygiene Program (Duty C), Respiratory Protection Program (Duty D), and

Wartime Disaster Operations (Duty H). The AFRC DAFSC 4B071 members spend 3 percent more time in each area. The AFRC members also spend 7 percent of their time Performing Medical Readiness Activities (Duty I) compared to 3 percent of the AD members' time. The AD members spend 10 percent more time Performing Management and Supervisory Activities (Duty J).

Table 29 reveals the tasks best differentiating between the AD and AFRC 7-skill levels. At least 25 percent more AD members perform specific management and supervisory tasks, such as establishing organizational policies, initiating actions required due to substandard performance of personnel, and evaluating personnel for compliance with performance standards. More of the AFRC members are involved in certain industrial hygiene program and respiratory protection program activities, including hazardous communication (HAZCOM) training, quantitative fit-testing, and qualitative fit testing.

ANG AND AFRC DAFSC 4B071. Table 27 shows that the ANG DAFSC 4B071 members spend more relative time Monitoring Drinking Water, Swimming Pools, or Spas (Duty A), Performing Environmental Monitoring (Duty B), Performing Industrial Hygiene Program Activities (Duty C), and Performing Radiological Health Program Activities (Duty E) compared to their AFRC peers. The AFRC members spend more time performing tasks in only two AFSC-specific duty areas – Respiratory Protection Program (Duty D) and Wartime Disaster Operations (Duty H). They also spend twice as much time Performing Management and Supervisory Activities (Duty J) compared to the ANG members.

Table 30 displays the tasks best differentiating between the ANG and AFRC components at the 7-skill level. More of the ANG members are performing specific industrial hygiene activities, such as determining or establishing administrative controls for chemical hazards and calibrating sound-level meters. In addition, at least 30 percent more ANG members perform specific radiological health program activities, such as identifying hazards resulting from x-ray operations, inventorying ionizing radiation producing devices, and inventorying radioactive material sources. The AFRC members are more involved in wartime disaster operations activities, including reviewing or developing staff decontamination control procedures, identifying the placement of facility sites, and identifying base support requirements under wartime conditions.

Comparative Analysis Summary

As discussed in their respective sections, AD, ANG, and AFRC DAFSC groups were examined and reported separately. A typical career ladder progression is evident across the AD and AFRC service components. (Career ladder progression was not examined for the ANG DAFSCs due to a low number of ANG 5-skill level members in the sample.) At the 5-skill level, AD and AFRC members are performing mostly technical tasks with the biggest difference in the Industrial Hygiene Program Activities (14 percent). The 7-skill level members for all three components are much more involved in the management and supervision of daily bioenvironmental engineering activities, but this is also the area with the most significant difference in the amount of time spent on tasks by the AD, ANG, and AFRC 7-skill level members. The ANG DAFSC 4B071 members spend more time Performing Industrial Hygiene Program Activities (Duty C) than the AD and AFRC 7-skill levels and correspondingly less time Performing Management and Supervisory Activities (Duty J).

TABLE 25

RELATIVE PERCENT TIME SPENT ON DUTIES BY AD AND AFRC DAFSC 4B051 GROUPS

DUTIES		AD (N=224)	AFRC (N=8)
A	MONITORING DRINKING WATER, SWIMMING POOLS, OR SPAS	10	4
B	PERFORMING ENVIRONMENTAL MONITORING	6	6
C	PERFORMING INDUSTRIAL HYGIENE PROGRAM ACTIVITIES	42	28
D	PERFORMING RESPIRATORY PROTECTION (RP) PROGRAM ACTIVITIES	6	9
E	PERFORMING RADIOLOGICAL HEALTH PROGRAM ACTIVITIES	7	5
F	PERFORMING BIOENVIRONMENTAL SUPPORT OF MISSILE AND SHUTTLE OPERATIONS	-	-
G	PERFORMING OR PRACTICING PEACETIME DISASTER OPERATIONS	2	3
H	PERFORMING OR PRACTICING WARTIME DISASTER OPERATIONS	5	11
I	PERFORMING MEDICAL READINESS ACTIVITIES	2	9
J	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	11	11
K	PERFORMING TRAINING ACTIVITIES	4	6
L	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1	5
M	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	3	2

" - " indicates less than 1 percent

TABLE 26

TASKS WHICH BEST DIFFERENTIATE BETWEEN AD AND AFRC DAFSC 4B051 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		AD DAFSC 4B051 (N=224)	AFRC DAFSC 4B051 (N=8)	DIFFERENCE
C0254	Prepare or present recommendations for ergonomic hazard controls	58	0	58
C0189	Determine or establish administrative controls for chemical hazards	67	13	54
C0191	Determine or establish follow-up actions for air sampling results	65	13	53
C0219	Identify potential biological health hazards	64	13	51
C0250	Prepare industrial hygiene reports	73	25	48
C0253	Prepare or present recommendations for confined space hazard controls	47	0	47
C0198	Evaluate control of regulated areas	44	0	44
C0269	Review hazardous materials through HAZMAT pharmacy	57	13	44
C0199	Evaluate engineering noise controls	56	13	44
C0227	Monitor indoor air quality (IAQ) instruments	42	0	42
C0165	Assign risk assessment codes (RACs)	54	13	42
E0308	Evaluate ionizing radiation controls	41	0	41
C0273	Review or update IEX code listings	41	0	41
L0610	Write minutes of briefings, conferences, or meetings	12	75	-63
I0472	Review predeployment or postdeployment questionnaires	4	50	-46
E0318	Exchange thermoluminescent dosimeters (TLDs)	32	75	-43
L0590	Destroy classified materials or documents	8	50	-42
I0438	Conduct predeployment or postdeployment patient interviews	2	38	-36
B0087	Calibrate direct reading environmental laboratory (DREL) test kits	14	50	-36
J0542	Plan briefings, conferences, or workshops	32	63	-31
J0484	Conduct self-inspections or self-assessments	32	63	-31
D0287	Perform quantitative fit-testings	69	100	-31
J0485	Conduct staff assistance visits, inspections, or audits	10	38	-27
B0156	Record results of environmental sampling analyses	25	50	-25
I0470	Perform immediate medical casualty care, such as basic cardiac life support	14	38	-24
B0153	Preserve water pollution samples	14	38	-24

TABLE 27

RELATIVE PERCENT TIME SPENT ON DUTIES BY AD, ANG, AND AFRC DAFSC 4B071 GROUPS

DUTIES		AD (N=65)	ANG (N=76)	AFRC (N=13)
A	MONITORING DRINKING WATER, SWIMMING POOLS, OR SPAS	4	5	4
B	PERFORMING ENVIRONMENTAL MONITORING	4	10	4
C	PERFORMING INDUSTRIAL HYGIENE PROGRAM ACTIVITIES	23	38	26
D	PERFORMING RESPIRATORY PROTECTION (RP) PROGRAM ACTIVITIES	3	5	6
E	PERFORMING RADIOLOGICAL HEALTH PROGRAM ACTIVITIES	5	8	4
F	PERFORMING BIOENVIRONMENTAL SUPPORT OF MISSILE AND SHUTTLE OPERATIONS	-	-	-
G	PERFORMING OR PRACTICING PEACETIME DISASTER OPERATIONS	2	2	2
H	PERFORMING OR PRACTICING WARTIME DISASTER OPERATIONS	5	7	8
I	PERFORMING MEDICAL READINESS ACTIVITIES	3	4	7
J	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	32	11	22
K	PERFORMING TRAINING ACTIVITIES	11	4	10
L	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	3	2	3
M	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	4	3	3

" - " indicates less than 1 percent

TABLE 28

TASKS WHICH BEST DIFFERENTIATE BETWEEN AD AND ANG DAFSC 4B071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		AD DAFSC 4B071 (N=65)	ANG DAFSC 4B071 (N=76)	DIFFERENCE
J0487	Conduct supervisory performance feedback sessions	77	22	55
J0560	Write or indorse military performance reports or appraisals	77	22	55
J0531	Initiate actions required due to substandard performance of personnel	68	14	53
J0514	Establish performance standards for subordinates	74	24	50
J0533	Inspect personnel for compliance with military standards	77	30	47
J0525	Evaluate personnel for compliance with performance standards	74	28	46
J0555	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	66	21	45
J0534	Interpret policies, directives, or procedures for subordinates	80	36	44
J0486	Conduct supervisory orientations for newly assigned personnel	72	29	43
J0481	Assign sponsors for newly assigned personnel	55	14	41
J0526	Evaluate personnel for promotion, demotion, reclassification, or special awards	69	29	40
J0561	Write recommendations for awards or decorations	75	38	37
C0175	Calibrate octave-band noise analyzers	31	87	-56
E0341	Prepare TLDs for shipment	11	66	-55
E0318	Exchange thermoluminescent dosimeters (TLDs)	17	68	-52
C0174	Calibrate noise dosimeters	40	92	-52
B0096	Collect oil-water separator samples	8	58	-50
C0246	Perform sound-level measurements	42	91	-49
B0091	Collect air samples for environmental analyses	15	63	-48
B0156	Record results of environmental sampling analyses	14	62	-48
C0239	Perform noise dosimetry	40	88	-48
E0307	Enroll personnel in TLD programs	20	68	-48
C0241	Perform octave-band noise measurements	31	78	-47
E0317	Evaluate storage of TLDs	22	68	-47
B0149	Prepare environmental samples for shipment	12	58	-46

TABLE 29

TASKS WHICH BEST DIFFERENTIATE BETWEEN AD AND AFRC DAFSC 4B071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		AD DAFSC 4B071 (N=65)	AFRC DAFSC 4B071 (N=13)	DIFFERENCE
J0513	Establish organizational policies, such as OIs or standard operating procedures (SOPs)	71	31	40
J0531	Initiate actions required due to substandard performance of personnel	68	31	37
J0525	Evaluate personnel for compliance with performance standards	74	38	35
J0534	Interpret policies, directives, or procedures for subordinates	80	46	34
J0512	Draft supplements or changes to directives, such as policy directives, instructions, or manuals	42	8	34
J0481	Assign sponsors for newly assigned personnel	55	23	32
J0517	Evaluate budget requirements	62	31	31
J0563	Write staff studies, surveys, or routine reports, other than training or inspection reports	60	31	29
J0552	Review expenditures	43	15	28
J0514	Establish performance standards for subordinates	74	46	28
J0555	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	66	38	28
J0536	Maintain automated data processing equipment (ADPE)	34	8	26
C0185	Conduct hazardous communication (HAZCOM) training	26	85	-58
D0287	Perform quantitative fit-testings	40	92	-52
A0005	Collect water samples from aircraft watering sources	5	54	-49
H0409	Identify placement of facility sites, such as medical sites	29	77	-48
D0279	Conduct RP training	37	85	-48
B0089	Calibrate pH meters	11	54	-43
H0392	Assemble or disassemble decontamination stations	11	54	-43
D0277	Administer respiratory protection (RP) questionnaires	28	69	-42
G0390	Perform peacetime decontamination operations	12	54	-42
D0286	Perform qualitative fit-testings	28	69	-42
C0199	Evaluate engineering noise controls	29	69	-40
I0468	Perform triage	6	46	-40
C0237	Perform instantaneous noise measurements	37	77	-40

TABLE 30

TASKS WHICH BEST DIFFERENTIATE BETWEEN ANG AND AFRC DAFSC 4B071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		ANG DAFSC 4B071 (N=76)	AFRC DAFSC 4B071 (N=13)	DIFFERENCE
C0189	Determine or establish administrative controls for chemical hazards	80	38	42
B0091	Collect air samples for environmental analyses	63	23	40
B0094	Collect bulk industrial hygiene samples, other than hazardous waste or asbestos	70	31	39
E0323	Identify hazards resulting from x-ray operations	62	23	39
E0318	Exchange thermoluminescent dosimeters (TLDs)	68	31	38
B0093	Collect bulk hazardous waste samples	68	31	38
E0325	Inventory ionizing radiation producing devices	57	23	34
C0178	Calibrate sound-level meters	87	54	33
C0164	Assign chemical issue exception (IEX) codes	78	46	31
B0156	Record results of environmental sampling analyses	62	31	31
E0327	Inventory radioactive material sources	54	23	31
B0099	Collect soil samples in support of hazardous material (HAZMAT) spills	54	23	31
J0487	Conduct supervisory performance feedback sessions	22	69	-47
H0429	Review or develop staff contamination control procedures	21	62	-40
H0409	Identify placement of facility sites, such as medical sites	38	77	-39
A0005	Collect water samples from aircraft watering sources	20	54	-34
J0486	Conduct supervisory orientations for newly assigned personnel	29	62	-33
G0386	Direct peacetime decontamination operations	21	54	-33
J0540	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	61	92	-32
J0533	Inspect personnel for compliance with military standards	30	62	-31
J0560	Write or indorse military performance reports or appraisals	22	54	-31
H0407	Identify base support requirements under wartime conditions	33	62	-29
G0390	Perform peacetime decontamination operations	25	54	-29
C0185	Conduct hazardous communication (HAZCOM) training	55	85	-29
D0279	Conduct RP training	55	85	-29
J0484	Conduct self-inspections or self-assessments	55	85	-29

TRAINING ANALYSIS

Occupational survey data are one of many sources of information that can be used to assist in the development of a training program relevant to the needs of personnel in their first enlistment. Factors which may be used in evaluating training include the overall description of the work being performed by first-job or first-enlistment personnel and their overall distribution across career ladder jobs, percentages of first-job (1–24 months' TAFMS) or first-enlistment (1–48 months' TAFMS) members performing specific tasks, as well as TE and TD ratings (previously explained in the **SURVEY METHODOLOGY** section).

First-Job Personnel

This study has 77 members in their first-job assignment (1–24 months' TAFMS), representing 18 percent of the total AD survey sample. Table 31 displays the relative time spent on duties by first-job personnel. As seen in this table, first-job personnel spend 44 percent of their time Performing Industrial Hygiene Program Activities (Duty C) and 21 percent of their time Monitoring Drinking Water, Swimming Pools, or Spas (Duty A). They also spend 10 percent of their time Performing Respiratory Protection (RP) Program Activities (Duty D). Table 32 lists representative tasks performed by these first-job personnel and reflects the technical nature of the job these newly assigned personnel perform.

First-Enlistment Personnel

The 174 members in their first-enlistment represent 40 percent of the total AD survey sample. Figure 2 reflects the distribution of first-enlistment personnel within the career ladder. Table 33 displays the relative percent of time spent on duties by first-enlistment personnel. Similar to the first-job members, these personnel spend 46 percent of their time Performing Industrial Hygiene Program Activities (Duty C). The first-enlistment members also spend 17 percent of their time Monitoring Drinking Water, Swimming Pools, or Spas (Duty A) and 9 percent of there time Performing Respiratory Protection (RP) Program Activities (Duty D). Representative tasks performed by first-enlistment personnel are displayed in Table 34. Table 35 lists the support equipment used or operated by 50 percent or more of the 1-48 months' TAFMS group members.

TABLE 31

RELATIVE PERCENT TIME SPENT ON DUTIES BY FIRST-JOB PERSONNEL (1–24 MONTHS' TAFMS) (N=77)

	DUTIES	PERCENT TIME SPENT
A	MONITORING DRINKING WATER, SWIMMING POOLS, OR SPAS	21
B	PERFORMING ENVIRONMENTAL MONITORING	7
C	PERFORMING INDUSTRIAL HYGIENE PROGRAM ACTIVITIES	44
D	PERFORMING RESPIRATORY PROTECTION (RP) PROGRAM ACTIVITIES	10
E	PERFORMING RADIOLOGICAL HEALTH PROGRAM ACTIVITIES	6
F	PERFORMING BIOENVIRONMENTAL SUPPORT OF MISSILE AND SHUTTLE OPERATIONS	-
G	PERFORMING OR PRACTICING PEACETIME DISASTER OPERATIONS	1
H	PERFORMING OR PRACTICING WARTIME DISASTER OPERATIONS	3
I	PERFORMING MEDICAL READINESS ACTIVITIES	2
J	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2
K	PERFORMING TRAINING ACTIVITIES	-
L	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1
M	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	2

" - " indicates less than 1 percent

TABLE 32

REPRESENTATIVE TASKS PERFORMED BY AFSC 4B0X1
FIRST-JOB PERSONNEL (1–24 MONTHS' TAFMS)

TASKS		PERCENT MEMBERS PERFORMING (N=77)
C0239	Perform noise dosimetry	75
D0287	Perform quantitative fit-testings	73
C0174	Calibrate noise dosimeters	73
A0004	Collect potable water samples	71
C0218	Identify hazardous noise sources	70
C0223	Interview shop personnel	69
C0167	Calibrate air sampling pumps	69
C0246	Perform sound-level measurements	68
C0261	Record results of industrial hygiene surveys	66
A0054	Perform pH determinations	65
C0266	Research OSHA standards	65
C0270	Review industrial case files	64
C0201	Evaluate hearing protection devices	64
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	64
C0181	Collect breathing zone or personal air samples	64
C0210	Evaluate results of noise measurements	62
C0178	Calibrate sound-level meters	62
C0264	Research material safety data sheets (MSDSs)	61
C0186	Construct or maintain industrial case files, other than Tab F	60
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	60
A0008	Collect water samples from swimming pools	58
C0179	Collect area air samples from industrial environments	58
C0250	Prepare industrial hygiene reports	57
C0242	Perform periodic ventilation measurements	57
C0224	Inventory chemicals	56
C0200	Evaluate ergonomic hazards	56
A0046	Perform chlorine-level determinations	55
C0213	Evaluate ventilation rates	55
C0217	Identify ergonomic hazards	55
D0286	Perform qualitative fit-testings	53
C0211	Evaluate shop HAZCOM programs	53
C0265	Research National Institute for Occupational Safety and Health (NIOSH) publications	53
C0267	Research or reference Code of Federal Regulation series	53
D0279	Conduct RP training	49
C0203	Evaluate industrial ventilation system designs	49
H0420	Perform fit testings for chemical warfare masks	48
D0289	Prepare RP certifications	47
C0189	Determine or establish administrative controls for chemical hazards	47
E0318	Exchange thermoluminescent dosimeters (TLDs)	45
A0048	Perform fluoride-level determinations	45

* Average Number of Tasks Performed – 107

DISTRIBUTION OF 4B0X1 FIRST-ENLISTMENT PERSONNEL ACROSS SPECIALTY CLUSTERS AND JOBS (N = 174)

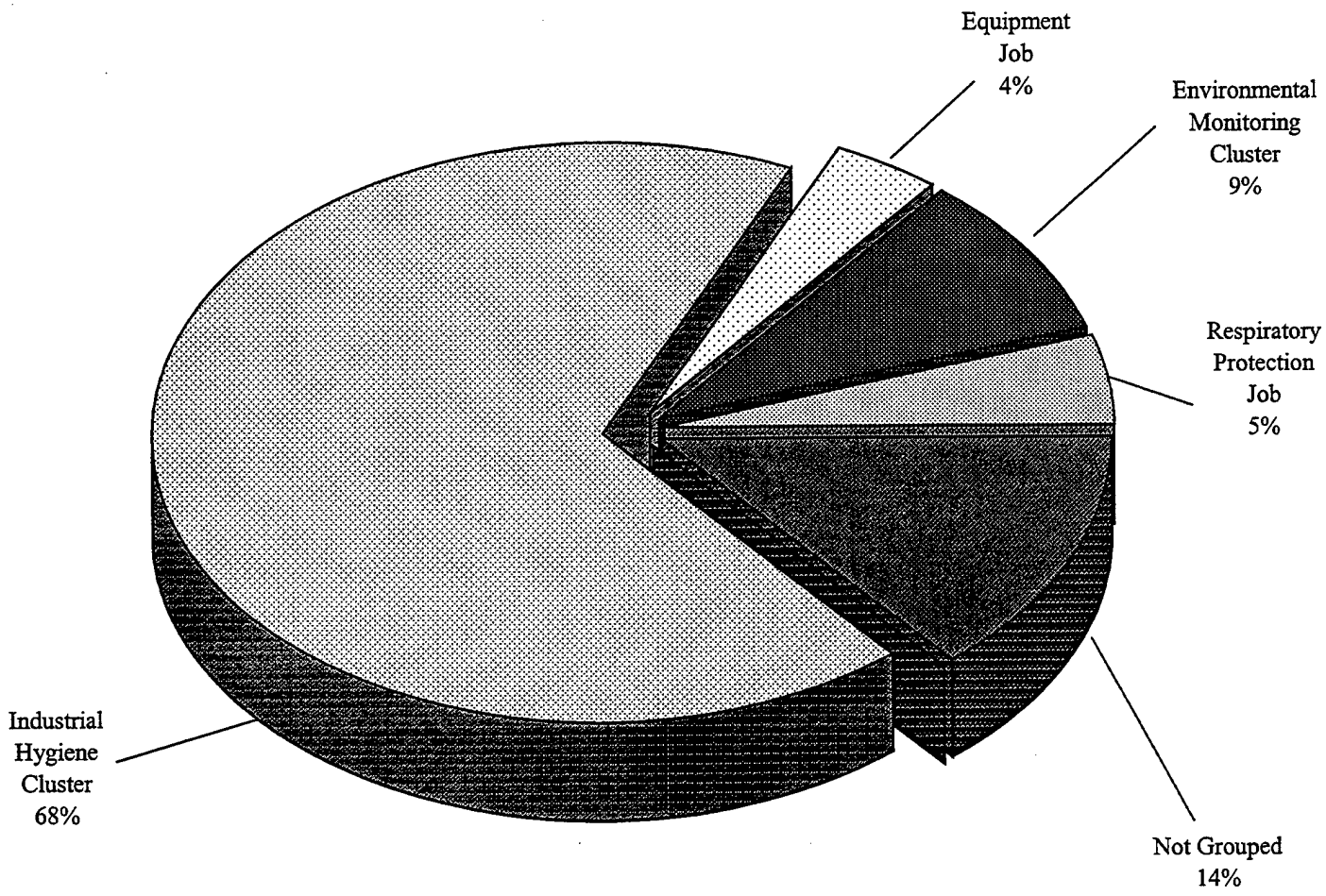

FIGURE 2

TABLE 33

RELATIVE PERCENT TIME SPENT ON DUTIES BY
FIRST-ENLISTMENT PERSONNEL
(N=174)

	DUTIES	PERCENT TIME SPENT
A	MONITORING DRINKING WATER, SWIMMING POOLS, OR SPAS	17
B	PERFORMING ENVIRONMENTAL MONITORING	7
C	PERFORMING INDUSTRIAL HYGIENE PROGRAM ACTIVITIES	46
D	PERFORMING RESPIRATORY PROTECTION (RP) PROGRAM ACTIVITIES	9
E	PERFORMING RADIOLOGICAL HEALTH PROGRAM ACTIVITIES	6
F	PERFORMING BIOENVIRONMENTAL SUPPORT OF MISSILE AND SHUTTLE OPERATIONS	-
G	PERFORMING OR PRACTICING PEACETIME DISASTER OPERATIONS	1
H	PERFORMING OR PRACTICING WARTIME DISASTER OPERATIONS	4
I	PERFORMING MEDICAL READINESS ACTIVITIES	2
J	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	3
K	PERFORMING TRAINING ACTIVITIES	1
L	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1
M	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	2

" - " indicates less than 1 percent

TABLE 34

REPRESENTATIVE TASKS PERFORMED BY AFSC 4B0X1
FIRST-ENLISTMENT PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=174)
C0239	Perform noise dosimetry	79
C0174	Calibrate noise dosimeters	79
C0218	Identify hazardous noise sources	77
C0246	Perform sound-level measurements	77
D0287	Perform quantitative fit-testings	76
C0223	Interview shop personnel	76
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	75
C0264	Research material safety data sheets (MSDSs)	75
C0167	Calibrate air sampling pumps	75
C0181	Collect breathing zone or personal air samples	74
C0201	Evaluate hearing protection devices	73
C0266	Research OSHA standards	73
C0210	Evaluate results of noise measurements	73
A0004	Collect potable water samples	72
C0261	Record results of industrial hygiene surveys	72
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	71
C0250	Prepare industrial hygiene reports	70
C0242	Perform periodic ventilation measurements	70
C0178	Calibrate sound-level meters	70
C0224	Inventory chemicals	68
C0270	Review industrial case files	67
C0186	Construct or maintain industrial case files, other than Tab F	67
C0213	Evaluate ventilation rates	67
C0265	Research National Institute for Occupational Safety and Health (NIOSH) publications	66
C0179	Collect area air samples from industrial environments	66
C0217	Identify ergonomic hazards	65
C0237	Perform instantaneous noise measurements	65
C0211	Evaluate shop HAZCOM programs	64
C0257	Prepare or present recommendations for noise hazards controls	64
C0209	Evaluate results of air sample analyses	63
A0008	Collect water samples from swimming pools	61
C0267	Research or reference Code of Federal Regulation series	61
A0054	Perform pH determinations	60
C0200	Evaluate ergonomic hazards	60
C0222	Interpret occupational exposure limit (OEL) values or notations	59
C0221	Identify risk of chemical exposures	57
D0286	Perform qualitative fit-testings	56
D0279	Conduct RP training	56
D0289	Prepare RP certifications	56
H0420	Perform fit testings for chemical warfare masks	56

* Average Number of Tasks Performed - 127

TABLE 35

SUPPORT EQUIPMENT USED OR OPERATED
BY FIRST-ENLISTMENT AFSC 4B0X1 PERSONNEL

SUPPORT EQUIPMENT USED OR OPERATED	1ST ENL (N=174)
Calculators	90
Quantitative Fit-Test Machines, Portacount	82
Dosimeters, Noise	82
Air Sampling Pumps	82
Computer Equipment	80
Wet Bulb Globe Temperature (WBGT) Instruments	76
Analyzers, Octave-Band Noise	75
Cameras	72
Air Sampling Sorbent Tubes, such as Charcoal Tubes	71
Detector Tubes	71
Test Kits, Chlorine pH	70
Meters, Sound-Level	70
Bacteriological Water Kits	70
Refrigerators	67
Dosimeters, Metrosonic	67
Rubber Gloves	66
Air Sampling Filters	66
Sound-Level Calibrators	64
Radio Equipment	64
Detector Tube Pumps	63
Meters, Indoor Air Quality	61
Combustible Gas Indicators	60
Dosimeters, Thermoluminescent	59
Meters, pH	56
Protective Face Equipment	55
Chemical Specific Sensors, such as CO or Hydrogen Sulfide Sensors	54
Data Loggers	54
Dosimeters, Quest	52
Rubber Aprons	52
Electronic Sampling Pump Calibrators	52
Flow Calibrators	51
Generators, Portable	51
Meters, Carbon Monoxide	50

Training Emphasis (TE) and Task Difficulty (TD) Data

TE and TD data are secondary factors that can assist technical school personnel in deciding which tasks should be emphasized in entry-level training. These ratings, based on the judgments of senior career ladder NCOs working at operational units in the field, are collected to provide training personnel with a rank-ordering of those tasks in the JI considered important for first-enlistment personnel training, along with a measure of the difficulty of the JI tasks. When combined with data on the percentages of first-enlistment personnel performing tasks, comparisons can be made to determine if training adjustments are necessary. For example, tasks receiving high ratings on both task factors (TE and TD), accompanied by moderate to high percentages performing, may warrant resident training. Those tasks receiving high task factor ratings but low percentages performing may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best omitted from training for first-enlistment personnel, but this decision must be weighed against percentages of personnel performing the tasks, command concerns, and criticality of the tasks.

To assist technical school personnel, AFOMS has developed a computer program that incorporates these secondary factors and the percentage of first-enlistment personnel performing each task to produce an Automated Training Indicator (ATI) for each task. ATIs correspond to training decisions listed and defined in the Training Decision Logic Table found in Attachment 2, AETCI 36-2601, and allow course personnel to quickly focus their attention on those tasks which are most likely to qualify for initial resident course consideration.

Table 36 presents tasks with the highest TE ratings for AFSC 4B0X1 first-enlistment airmen. For example, this table shows that TE raters reported tasks such as collecting breathing zone or personal air samples and performing noise dosimetry require a high degree of training emphasis. In general, tasks covering the industrial hygiene program are given high TE ratings, and the data indicate that most airmen in their first job and within their first enlistment are performing these tasks.

Table 37 displays those tasks AFSC 4B0X1 raters judged to be the most difficult to learn to perform satisfactorily. This table shows that TD raters reported investigating suspected laser overexposures and determining or establishing radiation doses or dose rates to be among the most difficult tasks to learn to perform satisfactorily. However, due to the low numbers of first-job and first-enlistment members performing those tasks, they would be inappropriate for inclusion in a resident curriculum and are more appropriately taught as OJT items.

Various lists of tasks, accompanied by TE and TD ratings, and where appropriate, ATI information, are contained in the TRAINING EXTRACT package and should be reviewed in detail by training school personnel. (For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the **SURVEY METHODOLOGY** section of this report.)

TABLE 36

TASKS RATED HIGHEST IN TRAINING EMPHASIS

TASKS		TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB (N=77)	PERCENT MEMBERS PERFORMING 1ST ENL (N =174)	TSK DIF**
C0181	Collect breathing zone or personal air samples	6.97	64	74	4.84
C0239	Perform noise dosimetry	6.77	75	79	4.55
C0209	Evaluate results of air sample analyses	6.71	51	63	5.65
A0004	Collect potable water samples	6.66	71	72	1.82
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	6.66	64	75	5.02
C0246	Perform sound-level measurements	6.63	68	77	4.14
C0167	Calibrate air sampling pumps	6.60	69	75	4.08
C0210	Evaluate results of noise measurements	6.60	62	73	4.89
D0287	Perform quantitative fit-testings	6.57	73	76	4.82
C0218	Identify hazardous noise sources	6.46	70	77	4.23
C0237	Perform instantaneous noise measurements	6.46	48	65	4.22
H0420	Perform fit testings for chemical warfare masks	6.37	48	56	4.43
C0179	Collect area air samples from industrial environments	6.34	58	66	4.75
C0242	Perform periodic ventilation measurements	6.31	57	70	4.51
C0201	Evaluate hearing protection devices	6.29	64	73	4.82
C0244	Perform process analyses	6.26	23	43	6.07
C0235	Perform confined-space measurements	6.26	25	34	5.18
C0174	Calibrate noise dosimeters	6.20	73	79	4.01
C0197	Evaluate contact or absorption hazards	6.20	38	50	5.33
C0264	Research material safety data sheets (MSDSs)	6.20	61	75	4.50
D0285	Inspect work areas for RP compliance	6.20	38	51	5.18
C0178	Calibrate sound-level meters	6.20	62	70	3.77
D0279	Conduct RP training	6.17	49	56	4.79
C0221	Identify risk of chemical exposures	6.17	40	57	5.23
D0288	Perform RP administrative duties, such as entering information into command core system	6.11	29	37	4.75

* Mean TE Rating is 3.21, and Standard Deviation is 1.68 (High TE = 4.89)

** Average TD Rating is 5.00

TABLE 37

TASKS RATED HIGHEST IN TASK DIFFICULTY

TASKS		TSK DIF	PERCENT MEMBERS PERFORMING 1ST JOB (N=77)	1ST ENL (N=174)	3-SKL LVL (N=133)	5-SKL LVL (N=224)	7-SKL LVL (N=65)	TNG EMP
E0330	Investigate suspected laser overexposures	7.05	8	7	8	9	15	2.34
E0304	Determine or establish radiation doses or dose rates	6.89	8	10	8	17	18	2.74
E0305	Direct disposal of radioactive waste	6.86	6	7	5	13	18	1.17
E0329	Investigate abnormal exposures, exposures above action levels, or overexposures to ionizing radiation	6.82	13	17	14	26	28	3.06
E0331	Investigate suspected RFR overexposures	6.81	10	10	9	21	23	2.51
H0424	Plot biographical warfare hazard areas for biological contamination distribution	6.80	9	14	11	21	25	2.91
E0303	Determine or establish ionizing radiation shielding requirements	6.79	10	12	11	16	17	1.83
C0195	Evaluate chromate hazard measurements	6.74	12	20	16	39	29	4.89
E0292	Calculate exponential radiation decay	6.67	6	7	6	8	11	1.86
B0110	Develop or update waste analysis plans	6.67	9	7	6	12	11	1.23
E0314	Evaluate radiation accidents, such as laboratory spills	6.66	8	10	8	14	12	2.03
H0425	Plot chemical warfare hazard areas for chemical contamination distribution	6.65	13	21	14	29	31	3.66
C0184	Conduct Department of Labor (DOL) compensation claim investigations	6.63	4	6	5	9	15	1.86
J0510	Draft host-tenant or interservice agreements	6.62	1	2	2	3	20	0.40
E0302	Coordinate special radiological studies with appropriate agencies	6.61	6	6	6	10	12	1.06
E0334	Monitor radioisotope permits or programs	6.59	3	4	3	11	22	1.69
C0192	Determine or establish lead abatement methodologies	6.58	8	9	8	15	17	2.14
E0296	Calculate radio frequency radiation (RFR) hazard distances	6.57	16	19	20	29	29	4.63
B0130	Investigate fish kills	6.55	9	9	10	9	3	2.80
E0301	Coordinate disposal methods for radioactive waste with appropriate agencies	6.55	6	8	8	17	22	1.74
C0252	Prepare or present recommendations for chromate hazard controls	6.52	13	21	19	41	23	4.34
B0152	Prepare or present recommendations for air pollution controls	6.50	8	7	8	6	6	0.91

* Mean TE Rating is 3.21, and Standard Deviation is 1.68 (High TE = 4.89)

** Average TD Rating is 5.00

Specialty Training Standard (STS)

A comprehensive review of the tentative STS 4B0X1, dated June 2000, was performed by comparing STS elements to survey data. Subject-matter experts (SMEs) from the United States Air Force School of Aerospace Medicine (USAFSAM) matched JI tasks to appropriate STS elements. (The STS elements containing general knowledge information, mandatory entries, subject-matter-knowledge-only requirements, or basic supervisory responsibilities were not examined.) Task knowledge and performance elements of the STS were compared against the standard set forth in AETCI 36-2601 and AFI 36-2623. Typically, STS elements that are matched to tasks with sufficiently high TE and TD ratings and are performed by at least 20 percent of personnel in appropriate skill-level groups, such as first-job (1–24 months' TAFMS) members and 3-skill level members, should be considered for inclusion in the STS. Likewise, elements matched to tasks with less than 20 percent performing in these groups should be considered for deletion from the STS.

Using this criterion, most 4B0X1 STS elements matched to JI tasks are well supported by occupational survey data. Overall, the STS captures the work performed by this career ladder as identified by the career ladder structure analysis of this AFSC. Eighteen paragraphs and subparagraphs had performance-coded entries, but subparagraphs within five of these areas did not have sufficient percentages of first-job (1–24 months' TAFMS), first-enlistment (1–48 months' TAFMS), or 3-skill level members performing tasks matched to those subparagraphs. Table 38 lists the unsupported STS elements with 20 percent or fewer first-job, first-enlistment, and 3-skill level members performing. The listed subparagraphs require review by training personnel as the low task performance percentages necessitate evaluation to justify retention in the STS. In some instances, the proficiency code may need to be revised to a knowledge-only code.

Table 39 lists the tasks not referenced to STS elements with 20 percent or more first-job, first-enlistment, or 3-skill level members performing. The tasks have between 21 and 56 percent members performing, and the majority of these tasks have high TE ratings and average TD ratings. The task with the highest ATI rating of 18 deals with performing fit-testings for chemical warfare masks. The tasks not referenced to any element of the STS are also listed at the end of the STS computer listing of the Training Extract. Training personnel should review these tasks for possible inclusion in the STS.

TABLE 38

STS ELEMENTS NOT SUPPORTED BY SURVEY DATA
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

UNIT	LEARNING OBJECTIVE	3-SKL LVL PROF CODE	PERCENT MEMBERS PERFORMING			
			TNG EMP*	1ST JOB	1ST ENL	3-SKL LVL
10.5.2.2.4	*Perform ionizing radiation calculations*	*1a*				
Tasks	E0292. Calculate exponential radiation decay		1.86	6	7	6
	E0293. Calculate half-life specific activities		2.09	8	9	8
15.2.3	*Interpret results of asbestos analysis*	*1a*				
Task	B0121. Interpret results of bulk asbestos analysis		4.26	16	18	14
19.2.2.3.1.4	*Prepare culture media for bacteriological analysis*	*1a*				
Task	A0064. Prepare bacteriological culture media		2.97	16	14	12
25.3.2.4	*Calculate source strength for hazardous materials*	*1a*				
Task	G0375. Calculate source strength for hazardous materials		3.34	9	13	11
25.3.2.7	*Provide guidance on decontamination methodologies*	*2b*				
Task	G0374. Brief officials, other than field officials, concerning types of required decontamination		2.49	8	13	11
25.4.4.1	*Use monitoring equipment – radiological incident response*	*1a*				
Task	H0418. Perform air sampling analyses during radiological mishaps		5.34	10	16	13

* Mean TE Rating = 3.21 Standard Deviation = 1.68 High TE = 4.89

TABLE 38 (CONTINUED)

STS ELEMENTS NOT SUPPORTED BY SURVEY DATA
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

UNIT	LEARNING OBJECTIVE	3-SKL LVL PROF CODE	PERCENT MEMBERS PERFORMING TNG EMP*	1ST JOB	1ST ENL	3-SKL LVL
26.2.2.7.3	*Maintain the ground crew ensemble*	*1a*				
Task	H0413. Maintain ground crew ensemble		5.00	13	19	14
26.4.2.5	*Calculate dosages – radiological exposure*	*1a*				
Task	H0400. Calculate stay time or total dose in radiation areas		3.97	13	18	14
26.4.2.6	*Determine stay times and protection factors*	*1a*				
Tasks	H0400. Calculate stay time or total dose in radiation areas		3.97	13	18	14
	H0403. Determine or apply shelter protection factors		3.51	4	7	5
26.6.2.1	*Identify bacteriological monitoring requirements – potable water supplies*	*2b*				
Task	H0411. Identify water sampling requirements to determine contamination of water systems		4.17	14	19	14

* Mean TE Rating = 3.21 Standard Deviation = 1.68 High TE = 4.89

TABLE 39

TASKS NOT REFERENCED TO STS ELEMENTS WITH 20 PERCENT OR MORE MEMBERS PERFORMING

TASKS		TNG EMP	PERCENT MEMBERS PERFORMING 1ST JOB (N=77)	1ST ENL (N=174)	3-SKL LVL (N=133)	TASK DIFF	ATI
H0420	Perform fit testings for chemical warfare masks	6.37	48	56	50	4.43	18
A0017	Evaluate disinfection or chlorination of potable water lines	4.80	31	32	29	4.04	15
A0018	Evaluate water quality complaints from customers	4.14	39	43	39	4.77	15
A0035	Investigate results of abnormal swimming pool, natural bathing area, spa, or hot tub samplings	4.54	34	32	32	4.48	15
C0271	Review shop spill procedures	4.83	38	42	43	5.04	15
B0094	Collect bulk industrial hygiene samples, other than hazardous waste or asbestos	6.03	34	44	38	4.31	12
C0191	Determine or establish follow-up actions for air sampling results	5.14	34	46	42	5.92	12
C0215	Identify chromate hazards	5.49	22	31	29	5.60	12
C0233	Perform chromate measurements	4.97	21	30	28	5.97	12
H0417	Operationally maintain water testing kits	5.37	21	28	22	4.25	11
A0048	Perform fluoride-level determinations	4.97	45	40	38	2.88	10
C0229	Operationally check detector tube pumps	5.31	27	32	29	3.34	10
G0387	Maintain PPE	5.17	26	36	32	3.90	10

* Mean TE Rating = 3.21 Standard Deviation = 1.68 High TE = 4.89

** Mean TD Rating = 5.00 Standard Deviation = 1.00 High TD = 6.00

JOB SATISFACTION ANALYSIS

An examination of the job satisfaction indicators of various groups can give career ladder managers a better understanding of some of the factors which may affect the job performance of airmen in the career ladder. Attitude questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions were included in the survey to provide indications of job satisfaction.

Table 40 presents job satisfaction data for AFSC 4B0X1 TAFMS groups, together with TAFMS data for a comparative sample of Medical career ladders surveyed in 1999, including 4D0X1 (Diet Therapy), 4F0X1 (Aeromedical), 4M0X1 (Aerospace Physiology), and 4N1X1/B/C/D (Surgical Service). First-enlistment personnel and career airmen indicated higher job interest, utilization of talents, utilization of training, and sense of accomplishment compared to the 1999 sample. The 49-96 months' TAFMS group rated their job interest and utilization of talents slightly lower than the comparative sample. The second-enlistment members also rated their sense of accomplishment lower than the comparative sample's second-enlistment members with 18 percent fewer members for this study indicating that they were satisfied. In addition, the reenlistment intentions are slightly lower than the 1999 Medical career ladder ratings for all TAFMS groups.

An indication of how job satisfaction perceptions have changed over time is provided in Table 41, where TAFMS data for the current survey respondents are compared to the 1996 survey respondents' perceptions. Job interest, utilization of talents, utilization of training, sense of accomplishment, and reenlistment intentions have slightly decreased for the 1-48 months' TAFMS group with even more significant decreases across all job satisfaction factors among the 49-96 months' TAFMS group over the past 4 years. The career airmen in this sample indicate slightly higher ratings for utilization of talents and sense of accomplishment from their work compared to the career airmen in the 1996 survey.

In Table 42, a review of the job satisfaction ratings for the specialty clusters and jobs identified in this survey reveals high satisfaction ratings overall for the Industrial Hygiene Cluster, the Environmental Monitoring Cluster, the Equipment Job, the Readiness Job, and the Management Cluster. The members of the Respiratory Protection Job indicated the lowest job interest and sense of accomplishment gained from the work they perform. However, they also rated their perceived utilizing of training the highest compared to the members of the three clusters and the other two independent jobs. Sense of accomplishment is the highest among the members of the Equipment Job and the Readiness Job.

Job satisfaction ratings for the ANG members of the sample are shown in Table 43. All of the ANG members indicated extremely high job satisfaction ratings for the five factors. Table 44 shows the job satisfaction ratings for the AFRC sample members. The eight AFRC 5-skill level members appear to be extremely satisfied with their jobs, and although the expressed job interest is high for the 7-skill level members, their perceived utilization of training and sense of accomplishment are noticeably lower than the ratings provided by the AFRC DAFSC 4B051 members.

TABLE 40

COMPARISON OF JOB SATISFACTION INDICATORS BY TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)

	1–48 MOS TAFMS		49–96 MOS TAFMS		97+ MOS TAFMS	
	2000 4B0X1 (N=174)	COMP SAMPLE* (N=1,365)	2000 4B0X1 (N=97)	COMP SAMPLE* (N=898)	2000 4B0X1 (N=167)	COMP SAMPLE* (N=1,981)
EXPRESSED JOB INTEREST:						
INTERESTING	77	68	66	70	87	74
SO-SO	14	16	14	18	8	16
DULL	9	16	20	12	5	10
PERCEIVED UTILIZATION OF TALENTS:						
FAIRLY WELL TO PERFECTLY	79	76	77	80	92	72
LITTLE OR NOT AT ALL	21	24	23	20	8	28
PERCEIVED UTILIZATION OF TRAINING:						
FAIRLY WELL TO PERFECTLY	90	80	89	79	88	85
LITTLE OR NOT AT ALL	10	20	11	21	12	15
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:						
SATISFIED	71	66	51	69	75	70
NEUTRAL	13	12	11	12	5	11
DISSATISFIED	16	22	38	19	20	19
REENLISTMENT INTENTIONS:						
YES OR PROBABLY YES	45	46	49	54	65	68
NO OR PROBABLY NO	55	54	51	46	9	12
PLAN TO RETIRE	0	0	0	0	26	20

* Comparative sample of Medical career ladders surveyed in 1999, including AFSCs 4D0X1, 4F0X1, 4M0X1, and 4N1X1/B/C/D.

TABLE 41

COMPARISON OF CURRENT SURVEY AND 1996 TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)

	1–48 MOS TAFMS		49–96 MOS TAFMS		97+ MOS TAFMS	
	2000 4B0X1 (N=174)	1996 4B0X1 (N=194)	2000 4B0X1 (N=97)	1996 4B0X1 (N=117)	2000 4B0X1 (N=167)	1996 4B0X1 (N=282)
EXPRESSED JOB INTEREST:						
INTERESTING	77	81	66	84	87	88
SO-SO	14	10	14	13	8	9
DULL	9	9	20	3	5	3
PERCEIVED UTILIZATION OF TALENTS:						
FAIRLY WELL TO PERFECTLY	79	82	77	87	92	89
LITTLE OR NOT AT ALL	21	18	23	13	8	11
PERCEIVED UTILIZATION OF TRAINING:						
FAIRLY WELL TO PERFECTLY	90	93	89	91	88	91
LITTLE OR NOT AT ALL	10	7	11	9	12	9
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:						
SATISFIED	71	72	51	61	75	72
NEUTRAL	13	10	11	12	5	7
DISSATISFIED	16	18	38	27	20	21
REENLISTMENT INTENTIONS:						
YES OR PROBABLY YES	45	57	49	62	65	67
NO OR PROBABLY NO	55	43	51	38	9	9
PLAN TO RETIRE	0	0	0	0	26	24

TABLE 42

COMPARISON OF JOB SATISFACTION INDICATORS BY SPECIALTY CLUSTERS AND JOBS
(PERCENT MEMBERS RESPONDING)

	Industrial Hygiene Cluster (STG064) (N=361)	Respiratory Protection Job (STG074) (N=11)	Environmental Monitoring Cluster (STG022) (N=27)	Equipment Job (ST072) (N=8)	Readiness Job (STG071) (N=8)	Management Cluster (STG042) (N=55)
EXPRESSED JOB INTEREST:						
INTERESTING	81	64	74	75	100	82
SO-SO	10	27	15	13	0	13
DULL	9	9	11	12	0	5
PERCEIVED UTILIZATION OF TALENTS:						
FAIRLY WELL TO PERFECTLY	85	82	81	76	88	93
LITTLE OR NOT AT ALL	15	18	19	24	12	7
PERCEIVED UTILIZATION OF TRAINING:						
FAIRLY WELL TO PERFECTLY	91	100	89	88	76	89
LITTLE OR NOT AT ALL	9	0	11	12	24	11
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:						
SATISFIED	73	55	67	88	88	66
NEUTRAL	7	27	7	0	12	5
DISSATISFIED	20	18	26	12	0	29

TABLE 43

JOB SATISFACTION INDICATORS BY ANG DAFSC GROUPS
(PERCENT MEMBERS RESPONDING)

	4B051 (N=2)	4B071 (N=76)
EXPRESSED JOB INTEREST:		
INTERESTING	100	83
SO-SO	0	13
DULL	0	4
PERCEIVED UTILIZATION OF TALENTS:		
FAIRLY WELL TO PERFECTLY	100	87
LITTLE OR NOT AT ALL	0	13
PERCEIVED UTILIZATION OF TRAINING:		
FAIRLY WELL TO PERFECTLY	100	90
LITTLE OR NOT AT ALL	0	10
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:		
SATISFIED	100	79
NEUTRAL	0	9
DISSATISFIED	0	12

TABLE 44

JOB SATISFACTION INDICATORS BY AFRC DAFSC GROUPS
(PERCENT MEMBERS RESPONDING)

	4B051 (N=8)	4B071 (N=13)
EXPRESSED JOB INTEREST:		
INTERESTING	100	85
SO-SO	0	15
DULL	0	0
PERCEIVED UTILIZATION OF TALENTS:		
FAIRLY WELL TO PERFECTLY	100	77
LITTLE OR NOT AT ALL	0	23
PERCEIVED UTILIZATION OF TRAINING:		
FAIRLY WELL TO PERFECTLY	100	69
LITTLE OR NOT AT ALL	0	31
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:		
SATISFIED	75	54
NEUTRAL	25	15
DISSATISFIED	0	31

IMPLICATIONS

This survey was initiated to provide current job and task data for use in evaluating the AFMAN 36-2108 *Specialty Description* and appropriate training documents. Survey results clearly indicate that the present classification structure, as described in the latest specialty description, accurately portrays the jobs performed in this career ladder.

The career ladder progression for the total sample is typical with the move from technical work at the 3- and 5-skill levels to supervisory and management tasks at the 7- and 9-skill levels. The 7-skill level members are still spending the majority of their time performing tasks that are technical in nature, but they are also spending 32 percent of their time performing management and supervisory activities. The DAFSC 4B091 members are spending almost 50 percent of their time managing the daily bioenvironmental engineering activities. The ANG and AFRC members are performing more technical tasks as they progress from the 5-skill level to the 7-skill level although the career ladder progression for these members is still typical. The jobs being performed by the AFRC members more closely resemble the jobs being performed by the AD members.

The survey data indicate that the career ladder training documents are well supported although adjustments may be warranted as discussed in the STS analysis section of this report.

Overall, job satisfaction is higher for first-enlistment members and career airmen compared to the sample of like Medical AFSCs surveyed in 1999. The second-enlistment members appear to be the least satisfied compared to their peers in similar Medical AFSCs. Members in the 1-48 months' TAFMS group and the 49-96 months' TAFMS group are less satisfied compared to the same TAFMS groups in the 1996 study. Reenlistment intentions are lower for all TAFMS groups compared to the members in the previous study.

APPENDIX A

SELECTED REPRESENTATIVE TASKS PERFORMED BY SPECIALTY JOB GROUPS

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TABLE A1

INDUSTRIAL HYGIENE CLUSTER (STG064)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N=361)
C0264	Research material safety data sheets (MSDSs)	96
C0223	Interview shop personnel	95
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	94
C0266	Research OSHA standards	94
C0218	Identify hazardous noise sources	94
C0210	Evaluate results of noise measurements	93
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	92
C0167	Calibrate air sampling pumps	92
C0261	Record results of industrial hygiene surveys	91
C0265	Research National Institute for Occupational Safety and Health (NIOSH) publications	91
C0246	Perform sound-level measurements	91
C0186	Construct or maintain industrial case files, other than Tab F	90
C0250	Prepare industrial hygiene reports	90
C0270	Review industrial case files	90
C0224	Inventory chemicals	90
C0181	Collect breathing zone or personal air samples	90
C0239	Perform noise dosimetry	90
C0211	Evaluate shop HAZCOM programs	89
C0201	Evaluate hearing protection devices	89
C0174	Calibrate noise dosimeters	89
C0209	Evaluate results of air sample analyses	88
C0213	Evaluate ventilation rates	87
C0267	Research or reference Code of Federal Regulation series	86
C0222	Interpret occupational exposure limit (OEL) values or notations	86
C0242	Perform periodic ventilation measurements	86
C0178	Calibrate sound-level meters	86
C0257	Prepare or present recommendations for noise hazards controls	85
C0221	Identify risk of chemical exposures	84
C0217	Identify ergonomic hazards	84
C0263	Research industrial regulations	83
C0237	Perform instantaneous noise measurements	83
C0189	Determine or establish administrative controls for chemical hazards	82
C0179	Collect area air samples from industrial environments	81
C0232	Perform baseline ventilation measurements	81
D0287	Perform quantitative fit-testings	79
C0200	Evaluate ergonomic hazards	79
C0191	Determine or establish follow-up actions for air sampling results	78
C0190	Determine or establish air sampling tactics or strategies	78
C0175	Calibrate octave-band noise analyzers	78
C0216	Identify confined-space hazards	77
C0197	Evaluate contact or absorption hazards	76
C0219	Identify potential biological health hazards	76
C0269	Review hazardous materials through HAZMAT pharmacy	75
C0245	Perform shop briefings for chemical or physical hazards	75
D0285	Inspect work areas for RP compliance	75

TABLE A2

RESPIRATORY PROTECTION JOB (STG074)

	REPRESENTATIVE TASKS	PERCENT MEMBERS PERFORMING (N=11)
D0287	Perform quantitative fit-testings	100
D0279	Conduct RP training	91
D0289	Prepare RP certifications	91
D0277	Administer respiratory protection (RP) questionnaires	91
D0283	Evaluate RP questionnaires	82
D0278	Brief shop supervisors on RP issues	82
D0284	Identify OSHA or other respiratory protection requirements	82
D0282	Evaluate RP programs	82
D0286	Perform qualitative fit-testings	73
D0281	Document master RP inventories	73
D0288	Perform RP administrative duties, such as entering information into command core system	64
D0280	Coordinate RP issues with appropriate agencies	64
D0285	Inspect work areas for RP compliance	64
D0290	Regulate issues of RP equipment	64
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	64
C0266	Research OSHA standards	64
C0223	Interview shop personnel	64
C0174	Calibrate noise dosimeters	64
H0420	Perform fit-testings for chemical warfare masks	55
C0239	Perform noise dosimetry	55
C0203	Evaluate industrial ventilation system designs	55
C0250	Prepare industrial hygiene reports	45
C0213	Evaluate ventilation rates	45
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	45
C0263	Research industrial regulations	36
C0186	Construct or maintain industrial case files, other than Tab F	36

TABLE A3

ENVIRONMENTAL MONITORING CLUSTER (STG022)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N=27)
A0004	Collect potable water samples	89
A0054	Perform pH determinations	89
A0074	Record results of pH or disinfectant residuals	74
A0008	Collect water samples from swimming pools	67
A0071	Preserve drinking water samples for chemical analyses	67
A0046	Perform chlorine-level determinations	67
A0070	Prepare water samples for shipment	67
A0043	Perform bacteriological analyses of water for total coliform using colilert technique	63
A0072	Record results of bacteriological analyses of water samples	63
A0018	Evaluate water quality complaints from customers	59
A0076	Report water sampling results to appropriate agencies	59
A0039	Perform bacteriological analyses of water for fecal coliform using colilert technique	56
A0086	Transport water samples	56
A0061	Perform postseason inspections of swimming pools	56
A0073	Record results of chemical analyses of water samples	56
A0063	Perform preseason inspections of swimming pools	52
A0009	Collect water samples from water trucks	52
A0079	Select bacteriological sample containers	48
B0103	Collect wastewater samples	48
B0107	Decontaminate sampling equipment	48
A0024	Interpret bacteriological analysis results of water analyzed for fecal coliform using colilert technique	44
A0037	Operationally check water testing kits	44
A0058	Perform volatile organic chemical (VOC), synthetic organic chemical (SOC), or polychlorinated biphenyl (PCB) samplings	44
A0048	Perform fluoride-level determinations	41
A0011	Determine or establish number or frequency of bacteriological samples	41
A0031	Interpret results from chemical analyses of drinking water samples	41
A0051	Perform nitrite samplings	41
A0035	Investigate results of abnormal swimming pool, natural bathing area, spa, or hot tub samplings	41
A0078	Review lifeguard entries in swimming pool logs	41
A0081	Sterilize equipment or water bottles	37
A0017	Evaluate disinfection or chlorination of potable water lines	37
A0015	Evaluate disinfection of new water mains, water main breaks, or repairs	37
B0102	Collect surface water samples	37
B0089	Calibrate pH meters	37
B0093	Collect bulk hazardous waste samples	37
B0091	Collect air samples for environmental analyses	37
A0077	Research Environmental Protection Agency (EPA) standards	37
A0028	Interpret bacteriological analysis results of water analyzed for total coliform using colilert technique	33
A0041	Perform bacteriological analyses of water for fecal coliform using presence-absence technique	33
B0092	Collect bulk asbestos samples, other than water	33
A0062	Perform preseason inspections of natural bathing areas	30

TABLE A4

EQUIPMENT JOB (STG072)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N=8)
M0617	Identify and report equipment or supply problems	100
M0615	Identify effective life of equipment	100
C0167	Calibrate air sampling pumps	100
C0174	Calibrate noise dosimeters	100
C0175	Calibrate octave-band noise analyzers	100
D0287	Perform quantitative fit-testings	88
M0621	Inventory equipment, tools, parts, or supplies	88
M0614	Evaluate serviceability of equipment, tools, parts, or supplies	88
C0265	Research National Institute for Occupational Safety and Health (NIOSH) publications	88
C0266	Research OSHA standards	88
C0246	Perform sound-level measurements	88
C0181	Collect breathing zone or personal air samples	88
A0004	Collect potable water samples	88
C0178	Calibrate sound-level meters	88
D0289	Prepare RP certifications	75
D0279	Conduct RP training	75
C0270	Review industrial case files	75
M0625	Maintain precision measurement equipment (PME) calibration schedules	75
C0261	Record results of industrial hygiene surveys	75
M0628	Pick up, deliver, or store equipment, tools, parts, or supplies	75
M0613	Develop equipment checklists	75
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	75
C0237	Perform instantaneous noise measurements	75
C0241	Perform octave-band noise measurements	75
C0204	Evaluate personal protective equipment (PPE) for chemical hazards	75
C0179	Collect area air samples from industrial environments	75
D0286	Perform qualitative fit-testings	63
H0420	Perform fit-testings for chemical warfare masks	63
C0223	Interview shop personnel	63
C0239	Perform noise dosimetry	63
M0618	Initiate documentation to turn in excess or surplus property	63
M0616	Identify equipment loan options	63
D0282	Evaluate RP programs	63
C0240	Perform noise impact or impulse measurements	63
D0285	Inspect work areas for RP compliance	63
C0257	Prepare or present recommendations for noise hazards controls	63
E0318	Exchange thermoluminescent dosimeters (TLDs)	63
C0250	Prepare industrial hygiene reports	63
E0307	Enroll personnel in TLD programs	63
C0168	Calibrate carbon monoxide detectors	63
C0264	Research material safety data sheets (MSDSs)	63
C0227	Monitor indoor air quality (IAQ) instruments	50
M0611	Coordinate maintenance of equipment with appropriate agencies	50
M0619	Initiate letters of justification for supply-related matters	50

TABLE A5

READINESS JOB (STG071)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N=8)
H0415	Operate NBC agent detection equipment	100
H0430	Train medical personnel on NBC agents	100
H0393	Assist in identification of nuclear, biological, and chemical (NBC) warfare agents	100
H0417	Operationally maintain water testing kits	100
H0413	Maintain ground crew ensembles	100
H0405	Don or doff PPE	100
H0408	Identify contaminated areas or issue appropriate warnings	100
H0414	Monitor facility NBC contamination controls	100
H0409	Identify placement of facility sites, such as medical sites	100
H0394	Brief field officials concerning types of required PPE	100
H0395	Brief field officials concerning potential health hazards	100
J0482	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	88
H0428	Research wartime manuals	88
H0411	Identify water sampling requirements to determine contamination of water systems	88
H0426	Record chemical, biological, or radiological exposures	88
H0401	Determine field water potability	88
H0396	Brief field officials concerning types of required decontamination	88
H0404	Direct or advise in wartime decontamination operations	88
H0423	Perform wartime decontamination operations	88
K0573	Develop training programs, plans, or procedures	75
H0420	Perform fit-testings for chemical warfare masks	75
H0425	Plot chemical warfare hazard areas for chemical contamination distribution	75
H0416	Operationally maintain air monitoring kits	75
H0410	Identify post attack recovery actions	75
H0406	Evaluate methods used to protect water under field conditions	75
H0412	Inspect construction of field water storage or treatment facilities	75
I0431	Administer or practice cardiopulmonary resuscitation (CPR)	75
H0402	Determine surface or airborne radiation concentrations	75
H0397	Brief personnel concerning evacuations or shelter requirements	75
G0387	Maintain PPE	75
I0466	Perform self-aid buddy care (SABC)	75
K0574	Develop written tests	63
K0575	Develop or procure training materials or aids	63
D0287	Perform quantitative fit-testings	63
J0540	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	63
H0427	Record radiation entry or exit times	63
H0419	Perform field industrial hygiene procedures	63
H0421	Perform nuclear detonation plottings for radiological contamination distribution	63
H0422	Perform radiological dose decay calculations	63
I0463	Participate in small arms training	63
J0483	Conduct safety inspections of equipment or facilities	63
E0347	Research or reference AFIs, policies, or standards	63
H0400	Calculate stay-time or total dose in radiation areas	63
H0407	Identify base support requirements under wartime conditions	63

TABLE A6

MANAGEMENT CLUSTER (STG042)

	REPRESENTATIVE TASKS	PERCENT MEMBERS PERFORMING (N=55)
J0540	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	93
J0489	Counsel subordinates concerning personal matters	91
J0534	Interpret policies, directives, or procedures for subordinates	91
J0561	Write recommendations for awards or decorations	91
J0533	Inspect personnel for compliance with military standards	89
J0525	Evaluate personnel for compliance with performance standards	87
J0560	Write or indorse military performance reports or appraisals	85
J0487	Conduct supervisory performance feedback sessions	85
J0514	Establish performance standards for subordinates	82
J0498	Develop or establish work schedules	78
K0569	Conduct OJT	78
J0486	Conduct supervisory orientations for newly assigned personnel	78
J0482	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	76
J0528	Evaluate work schedules	75
K0578	Evaluate personnel to determine training needs	75
K0566	Brief personnel concerning training programs or matters	75
J0529	Evaluate workload requirements	75
J0526	Evaluate personnel for promotion, demotion, reclassification, or special awards	75
K0582	Maintain training records or files	73
J0555	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	71
J0531	Initiate actions required due to substandard performance of personnel	71
J0497	Develop or establish work methods or procedures	69
J0513	Establish organizational policies, such as OIs or standard operating procedures (SOPs)	69
K0579	Evaluate progress of trainees	67
J0539	Participate in councils, boards, or committee meetings, such as base facility boards or environment protection committees	67
K0571	Determine training requirements	65
J0550	Plan or schedule work assignments or priorities	65
K0570	Counsel trainees on training progress	65
J0490	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	65
J0480	Assign personnel to work areas or duty positions	62
C0262	Research Air Force Occupational Safety and Health (AFOSH) standards	62
C0266	Research OSHA standards	62
J0509	Draft budget requirements	62
J0508	Draft agenda for general meetings, such as staff meetings, briefings, conferences, or workshops	60
J0492	Develop organizational or functional charts	60
J0481	Assign sponsors for newly assigned personnel	60
J0517	Evaluate budget requirements	58
C0267	Research or reference Code of Federal Regulation series	58
J0521	Evaluate job-related suggestions	56
J0520	Evaluate job or position descriptions	55